



Arlington Conservation Commission

Date: Thursday, May 7, 2020

Time: 7:30 PM

Location: Conducted by Remote Participation

Agenda

1. Administrative

- a. The Arlington Conservation Commission is inviting you to a scheduled Zoom meeting.

In accordance with the Governor's Order Suspending Certain Provisions of the Open Meeting Law, G. L. c. 30A, § 20 relating to the COVID-19 emergency, the May 7, 2020 public meeting of the Arlington Conservation Commission shall be physically closed to the public to avoid group congregation. The meeting shall instead be held virtually using Zoom.

Topic: Conservation Commission Meeting

Time: Apr 16, 2020 07:30 PM Eastern Time (US and Canada)

Join Zoom Meeting

<https://zoom.us/j/921521418>

Meeting ID: 921 521 418

Password: 839254

One tap mobile

+1-301-715-8592,,921521418# US

+1312-626-6799,,921521418# US

Members of the public are strongly encouraged to send written comment regarding any of the hearings listed below to Conservation Agent Emily Sullivan at esullivan@town.arlington.ma.us.

Please read Governor Baker's Executive Order Suspending Certain Provision of Open Meeting Law for more information regarding virtual public hearings and meetings: <https://www.mass.gov/doc/open-meeting-law-order-march-12-2020/download>

Public access to this meeting shall be provided in the following manner:

Real-time public comment can be addressed to the Conservation Commission utilizing the Zoom virtual meeting software for remote participation. This application will allow attendees to request an opportunity for public comment, and allow the Conservation Chair or Agent to grant attendees the opportunity for public comment. Attendees can use either phone or computer to participate in the meeting. Public comment can also be sent in advance of the meeting by emailing the Conservation Agent at esullivan@town.arlington.ma.us by no later than 3pm on May 7 2020. Submitted public comment will be read into the record at the appropriate points in the meeting.

- b. Review draft 04/02/2020 minutes.
- c. Review draft 04/16/2020 minutes.
- d. Administrative updates.

2. Hearings

Enforcement: 39 Wellington Street

Enforcement Summary:

In August 2019, the Commission became aware that Park and Recreation owned land, adjacent to 39 Wellington Street and abutting Spy Pond had been clear-cut of vegetation. This work was not approved by the Park and Recreation Commission or the Conservation Commission. During the 05/07/2020 meeting, the Commission will review a proposed replanting plan for the area that.

Notice of Intent: 1297 Massachusetts Ave

MassDEP File #091-0321

This Notice of Intent (NOI) was first presented to the Conservation Commission at its 04/16/2020 meeting. It is strongly encouraged that members of the public submit written comment for this NOI to the Conservation Agent in advance of the hearing, by emailing Emily Sullivan at esullivan@town.arlington.ma.us. All materials submitted for this NOI can be found on the Commission's agenda and minutes page, under the agenda for the 05/07/2020 meeting.

Hearing Summary:

This project proposes the excavation and remediation of soil contaminated by commercial kitchen soy bean oil grease within the 100-ft Wetlands Buffer.

Notice of Intent: 105 Lafayette Street

MassDEP File #091-0322

This Notice of Intent (NOI) has not yet been presented to the Conservation Commission, and this meeting is the first opportunity for public comment. It is strongly encouraged that members of the public submit written comment for this NOI to the Conservation Agent in advance of the hearing, by emailing Emily Sullivan at esullivan@town.arlington.ma.us. All materials submitted for this NOI can be found on the Commission's agenda and minutes page, under the agenda for the 05/07/2020 meeting.

Hearing Summary:

This project proposes to raze and construct a single family home within the 100-ft Wetlands Buffer, 200-ft Riverfront Area, and floodplain.

Deliberations: 47 Spy Pond Lane Lots 1/A and 2/B (continued from 3/5/2020)

MassDEP File #s 091-0318 (Lot 1/A) and 091-0317 (Lot 2/B)

These hearings were closed for public comment during the Commission's 4/2/2020 meeting. The Commission cannot accept public comment regarding these Notices of Intent (NOIs). These NOIs were presented to the Commission on 3/5/2020 and 4/2/2020 with the opportunity for public comment. All materials submitted for these NOIs can be found on the Commission's agenda and minutes page, under the agenda for the 05/07/2020 meeting.

Hearing Summary:

The Superseding Orders of Conditions issued by the Massachusetts Department of Environmental Protection on 12/29/2016 for Lot 1/A and Lot 2/B expired on 12/29/2019. The project sites are therefore currently only permitted under the local Arlington Wetlands Protection Bylaw, and not the Massachusetts Wetlands Protection Act. These Notices of Intent are filed under the Wetlands Protection Act only. The Lot 1/A project proposes to remove an

existing impervious driveway and construct a house, partially within the 100-ft Wetlands Buffer. The Lot 2/B project proposes to demolish an existing house and construct a new house, partially within the 100-ft Wetlands Buffer.



Town of Arlington, Massachusetts

Remote Participation Information

Summary:

The Arlington Conservation Commission is inviting you to a scheduled Zoom meeting.

In accordance with the Governor's Order Suspending Certain Provisions of the Open Meeting Law, G. L. c. 30A, § 20 relating to the COVID-19 emergency, the May 7, 2020 public meeting of the Arlington Conservation Commission shall be physically closed to the public to avoid group congregation. The meeting shall instead be held virtually using Zoom.

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Town of Arlington, Massachusetts

Review draft 04/02/2020 minutes

Summary:

Review draft 04/02/2020 minutes.

ATTACHMENTS:

Type	File Name	Description
▢ Minutes	DRAFT_04022020_Minutes_Conservation_Commission.pdf	Draft 04/02/2020 Minutes



Arlington Conservation Commission

Date: April 02, 2020

Time: 7:30pm

Location: Conducted through Remote Participation using Zoom

Minutes

Attendance: Commission Members Susan Chapnick (Chair), Pam Heidell, Dave Kaplan, Nathaniel Stevens, Chuck Tirone (Vice Chair), and David White; Associate Commissioners Cathy Garnett and Mike Gildesgame; and Conservation Agent Emily Sullivan. Members of the public included Mary Trudeau, Lynne Cooney, Ron Strohsahl, and Kim Alexander.

02/27/2020 Meeting Minutes

The Commission discussed edits to the draft 02/27/2020 minutes. N. Stevens motioned to approve the minutes as edited, C. Tirone seconded, all were in favor, motion approved.

03/05/2020 Meeting Minutes

The Commission discussed edits to the draft 03/05/2020 minutes. N. Stevens motioned to approve the minutes as edited, D. White seconded, all were in favor, motion approved.

Notices of Intent: 47 Spy Pond Lane Lots 1/A and 2/B (continued from 3/5/2020) MassDEP File #s 091-0317 and 0961-0317 respectively

Lot 1/A

Documents Reviewed:

- 1) *Notice of Intent for work at 47 Spy Pond Lane (Lot 1/Lot A), Arlington, MA dated 02/20/2020*

Resource Areas:

- 1) *Spy Pond*
- 2) *100-Foot Wetlands Buffer Zone*
- 3) *Adjacent Upland Resource Area*
- 4) *Bordering Land Subject to Flooding*
- 5) *Bank*

C. Tirone motioned to continue the hearing from the Commission's 03/05/2020 meeting to the Commission 04/02/2020 meeting (the current meeting), N. Stevens seconded, all were in favor, motion approved. The Commission's 03/19/2020 meeting had to be cancelled due to the COVID-19 pandemic.

M. Trudeau presented the project. The Superseding Orders of Conditions issued by the Massachusetts Department of Environmental Protection on 12/29/2016 for Lot 1/A expired on 12/29/2019. This project site is therefore currently only permitted under the local Arlington Wetlands Protection Bylaw, and not the Massachusetts Wetlands Protection Act. This Notice of Intent are-is filed under the Wetlands Protection Act only. The Lot 1/A project proposes to remove an existing impervious driveway and construct a house.

P. Heidell motioned to close the public hearing for Lot 1/A, N. Stevens seconded, all were in favor, motion approved.

The Commission discussed possible special conditions for the permit and asked E. Sullivan to create a draft permit for review during the Commission's 4/16/2020 meeting.

Lot 2/B

Documents Reviewed:

- 1) Notice of Intent for work at 47 Spy Pond Lane (Lot 2/Lot B), Arlington, MA dated 02/20/2020

Resource Areas:

- 1) Spy Pond
- 2) 100-Footer Wetlands Buffer Zone
- 3) Adjacent Upland Resource Area
- 4) Bordering Land Subject to Flooding
- 5) Bank

N. Stevens motioned to continue the hearing from the Commission's 03/05/2020 meeting to the Commission 04/02/2020 meeting (the current meeting), D. Kaplan seconded, all were in favor, motion approved. The Commission's 03/19/2020 meeting had to be cancelled due to the COVID-19 pandemic.

M. Trudeau presented the project. The Superseding Orders of Conditions issued by the Massachusetts Department of Environmental Protection on 12/29/2016 for Lot 2/B expired on 12/29/2019. This project site is therefore currently only permitted under the local Arlington Wetlands Protection Bylaw, and not the Massachusetts Wetlands Protection Act. This Notice of Intent are-is filed under the Wetlands Protection Act only. The Lot 2/B project proposes to demolish an existing house and construct a new house.

D. Kaplan motioned to close the public hearing for Lot 1/A, N. Stevens seconded, all were in favor, motion approved.

The Commission discussed possible special conditions for the permit and asked E. Sullivan to create a draft permit for review during the Commission's 4/16/2020 meeting.

Notice of Intent: 93 Sunnyside Ave (continued from 02/27/2020) MassDEP File #091-0319

Documents Reviewed:

1) *Notice of Intent for work at 93 Sunnyside Ave, Arlington MA dated 02/13/2020*

Resource Areas:

- 1) *Alewife Brook*
- 2) *200-Foot Riverfront Area*
- 3) *Bordering Land Subject to Flooding*

N. Stevens motioned to continue the hearing from the Commission's 03/05/2020 meeting to the Commission 04/02/2020 meeting (the current meeting), D. White seconded, all were in favor, motion approved. The Commission's 03/19/2020 meeting had to be cancelled due to the COVID-19 pandemic.

L. Cooney presented the project. This project proposes an addition in the backyard and expanding a mudroom in the front yard. The back addition is within the 200-ft Riverfront Area and 100-year floodplain. The back addition is proposed to be built on footings, above the floodplain. The front addition is within the 200-ft Riverfront Area. The project also proposes installing a deck and porous paver driveway in the back yard. As mitigation, this project proposes a native vegetated buffer and three drywells that capture all roof runoff.

N. Stevens motioned to close the public hearing, D. White seconded, all were in favor, motion approved.

The Commission discussed possible special conditions for the permit and asked E. Sullivan to create a draft permit for review during the Commission's 4/16/2020 meeting.

Notice of Intent: 77 Sunnyside Ave
MassDEP File #unassigned

Documents Reviewed:

1) *Notice of Intent for work at 77 Sunnyside Ave, Arlington MA dated 03/05/2020*

Resource Areas:

- 1) *Alewife Brook*
- 2) *100-Foot Wetlands Buffer Zone*
- 3) *100-Foot Adjacent Upland Resource Area*
- ~~34~~) *200-Foot Riverfront Area*
- ~~45~~) *Bordering Land Subject to Flooding*

R. Strohsahl presented the project. This project proposes building an elevated addition in the backyard and an entranceway in the front yard. The back addition and front addition are both within the 100-ft Wetland Buffer, 100-ft Adjacent Upland Resource Area, and 200-ft Riverfront Area. No work is proposed within the floodplain. The project also proposes replacing an existing bituminous concrete walkway and driveway with pervious pavers.

S. Chapnick asked for clarification regarding the resource area delineations. P. Heidell asked how the floodplain resource area was delineated and whether a Letter of Map Amendment would be submitted to FEMA. R. Strohsahl stated that the wetland

resource areas were delineated by a wetland scientist and an engineer determined the floodplain boundary. A surveyor then combined the resource areas on the plot plan and also took elevations.

C. Tirone asked whether the driveway would be replaced at the same elevation as the current survey.

The meeting was abruptly ended due to Zoombombing at 8:45pm.

DRAFT



Town of Arlington, Massachusetts

Review draft 04/16/2020 minutes

Summary:

Review draft 04/16/2020 minutes.

ATTACHMENTS:

Type	File Name	Description
▢ Minutes	DRAFT_04162020_Minutes_Conservation_Commission.pdf	Draft 04/16/2020 Minutes



Arlington Conservation Commission

Date: April 16, 2020

Time: 7:30pm

Location: Conducted through Remote Participation using Zoom

Minutes

Attendance: Commission Members Susan Chapnick (Chair), Pam Heidell, Dave Kaplan, Nathaniel Stevens, Chuck Tirone (Vice Chair), and David White; Associate Commissioners Cathy Garnett and Mike Gildesgame; and Conservation Agent Emily Sullivan. Members of the public included Ron Strohsahl, Kim Alexander, and Russ Barton.

Administrative

E. Sullivan stated that there would be a Wellington Park virtual public presentation through Zoom on Wednesday 4/22/2020 at 7:00pm to present concepts on the next phase of design and get feedback from residents. The presentation would be followed up with an online survey to get more specific feedback about project concepts.

E. Sullivan stated that DPW and the Parks Division would be implementing a no mow zone around the McClennen detention basins this spring, and only mow the 10-15 feet of grass immediately adjacent to the basins once a year in the fall.

Vote to Authorize Conservation Agent to Sign Permits on Behalf of Commission

The Commission discussed the difficulty of signing permits when the Commission can only meet virtually due to the COVID-19 pandemic. The Commission discussed ~~voted to~~ authorize eing E. Sullivan to sign permits on behalf of the Commission for the duration n of the declared State of Emergency.

N. Stevens motioned to authorize E. Sullivan as the Conservation Agent to sign permits on behalf of the Commission members for the duration of the State of Emergency, D. Kaplan seconded, all were in favor, motion approved.

Vote to Register for a Conservation Commission Zoom Pro Account

The Commission discussed whether it should continue using an existing Town Zoom Pro Account or if the Commission should purchase its own Zoom Pro Account. E. Sullivan presented two Conservation Accounts that had enough funding to pay for a Zoom Pro Account for the duration of the State of Emergency. The Commission agreed that a Zoom Account was an eligible expense for the Commission's Wetlands Fee Account.

C. Tirone motioned for the Commission to purchase its own Zoom Pro Account for the duration of the State of Emergency, D. White seconded, all were in favor, motion approved.

Notice of Intent: 93 Sunnyside Ave
MassDEP File #091-0319

Documents Reviewed:

- 1) *Notice of Intent for work at 93 Sunnyside Ave, Arlington MA dated 02/13/2020*

Resource Areas:

- 1) *Alewife Brook*
- 2) *200-Foot Riverfront Area*
- 3) *Bordering Land Subject to Flooding*

The Commission reviewed the draft permit for this project. The Commission discussed the special conditions of the draft permit.

D. White motioned to approve the project under the Wetlands Protection Act and Arlington Bylaw for Wetlands Regulation with the special conditions agreed upon by the Commission, N. Stevens seconded, all were in favor, motion approved.

Notices of Intent: 47 Spy Pond Lane Lots 1/A and 2/B NOIs
MassDEP File #s 091-0317 and 0961-0317 respectively

Documents Reviewed:

- 1) *Notice of Intent for work at 47 Spy Pond Lane (Lot 1/Lot A), Arlington, MA dated 02/20/2020*
- 2) *Notice of Intent for work at 47 Spy Pond Lane (Lot 2/Lot B), Arlington, MA dated 02/20/2020*

Resource Areas:

- 1) *Spy Pond*
- 2) *100-Foot Wetlands Buffer Zone*
- 3) *Adjacent Upland Resource Area*
- 4) *Bordering Land Subject to Flooding*
- 5) *Bank*

The Commission reviewed the draft permits for both projects. The Commission discussed the special conditions of the draft permits.

N. Stevens motioned to continue deliberation of these projects to the Commission's 05/07/2020 meeting, C. Tirone seconded, all were in favor, motion approved.

Notice of Intent: 77 Sunnyside Ave
MassDEP File #091-0320

Documents Reviewed:

- 1) *Notice of Intent for work at 77 Sunnyside Ave, Arlington MA dated 03/05/2020*

Resource Areas:

- 1) Alewife Brook
- 2) 100-Foot Wetlands Buffer Zone
- 3) 100-Foot Adjacent Upland Resource Area
- 34) 200-Foot Riverfront Area
- 54) Bordering Land Subject to Flooding

R. Strohsahl presented the project. This project proposes building an elevated addition in the backyard and an entranceway in the front yard. The back addition and front addition are both within the 100-ft Wetland Buffer and 200-ft Riverfront Area. No work is proposed within the floodplain. The project also proposes replacing an existing bituminous concrete walkway and driveway with pervious pavers.

~~include additional materials request from the Commission~~

~~R. Strohsahl presented information that two Commission members independently requested through the Conservation Agent. The Commission requested the following list of supplemental information after its 04/02/2020 hearing on this project:~~

The Commission reviewed the supplemental material. D. Kaplan asked if the proposed pervious pavers had any details and specifications. E. Sullivan shared the details and specifications with the Commission.

P. Heidell commented that the supplemental material and the changes made to the project since the 04/02/2020 hearing were improvements and that the project now complied with the Town's Bylaw for Wetlands Protection. N. Stevens stated that the project was much improved with the new information and changes. S. Chapnick thought the rain garden and new trees were a great addition to the project.

N. Stevens motioned to close the public hearing for this project, D. White seconded, all were in favor, motion approved.

The Commission discussed the special conditions of the draft permits. ~~<<NS: list conditions>>~~ **include permit conditions**

N. Stevens motioned to approve the project under the Wetlands Protection Act and Arlington Bylaw for Wetlands Regulation with the special conditions ~~agreed upon~~ **discussed** by the Commission, P. Heidell seconded, all were in favor, motion approved.

Notice of Intent: 1297 Mass Ave
MassDEP File #091-0321

Documents Reviewed:

- 1) Notice of Intent for work at 1297 Mass Ave, Arlington MA dated 03/03/2020

Resource Areas:

- 1) Mill Brook
- 2) 100-Foot Wetlands Buffer Zone

3) 100-Foot Adjacent Upland Resource Area
34) 200-Foot Riverfront Area

R. Barton presented the project. This project proposes the excavation and remediation of soil contaminated by commercial kitchen soy bean oil grease within the 100-ft Wetlands Buffer and 200-ft Riverfront Area.

D. Kaplan stated the vegetation replacement plan should include native vegetation like shrubs, ferns, and sedges, rather than just turf. C. Garnett recommended that the native vegetation selected should have strong roots to mitigate bank erosion.

D. White mentioned that there was a restoration project discussed with the Commission approximately 5 years ago in the vicinity of this proposed work. N. Stevens stated the restoration work may have been proposed near 30 Park Ave, near the Mill Brook culvert. N. Stevens asked E. Sullivan to look for these restoration plan documents.

C. Tirone asked whether the grease waste container will be replaced and if additional precautions will be taken to prevent leaks in the future. C. Tirone requested an Operation and Maintenance plan for the grease waste container.

S. Chapnick asked whether the applicant had considered moving the location of the grease waste container so that it would be further from the resource area.

The Commission requested the following additional information:

- 1) an O&M plan for the grease waste container
- 2) shrubs/plugs in addition to the grass mix proposed
- 3) amended plans with a 12" compost sock as erosion control

N. Stevens motioned to continue the hearing to the Commission's 05/07/2020 meeting, D. White seconded, all were in favor, motion approved.

D. White motioned to close the Commission meeting, N. Stevens seconded, all were in favor, motioned approved.

Meeting adjourned at 9:55pm.



Town of Arlington, Massachusetts

Administrative Update

Summary:

Administrative updates.



Town of Arlington, Massachusetts

Enforcement: 39 Wellington Street

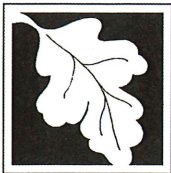
Summary:

Enforcement Summary:

In August 2019, the Commission became aware that Park and Recreation owned land, adjacent to 39 Wellington Street and abutting Spy Pond had been clear-cut of vegetation. This work was not approved by the Park and Recreation Commission or the Conservation Commission. During the 05/07/2020 meeting, the Commission will review a proposed replanting plan for the area that.

ATTACHMENTS:

Type	File Name	Description
▢ Enforcement Order	39_Wellington_Enforcement_Order.pdf	39 Wellington St Enforcement Order
▢ Enforcement Order	39_Wellington_St_Notice_of_Enforcement_Order.pdf	39 Wellington St Notice of Enforcement
▢ Enforcement Order	39_Wellington_St_Enforcement_Planting_Plan.pdf	39 Wellington St Proposed Planting Plan
▢ Enforcement Order	39_Wellington_St_Enforcement_Planting_List.pdf	39 Wellington St Proposed Planting List



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 9 – Enforcement Order
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

DEP File Number: _____

A. Violation Information

Important:

When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



This Enforcement Order is issued by:

Arlington
Conservation Commission (Issuing Authority)

8/7/2019

Date

To:

Mr. Peter Howard
Name of Violator
39 Wellington Street, Arlington MA 02476
Address

1. Location of Violation:

Arlington Park and Recreation Commission
Property Owner (if different)
0-Lot Pond Lane Parcel ID 121-6-2
Street Address
Arlington
City/Town
121.0
Assessors Map/Plat Number

02476

Zip Code

0002.0

Parcel/Lot Number

2. Extent and Type of Activity (if more space is required, please attach a separate sheet):

Clear-cutting of approximately 37 trees, ranging from 1 to 9 inches in diameter, and other vegetation within 100 feet of Spy Pond were clear cut without Conservation Commission approval under the Act and Arlington Wetlands Protection Bylaw. The trees were on town-owned land, owned by the Park and Recreation Commission. One small caliper tree was planted in the area, as well as some shrubs.

B. Findings

The Issuing Authority has determined that the activity described above is in a resource area and/or buffer zone and is in violation of the Wetlands Protection Act (M.G.L. c. 131, § 40) and its Regulations (310 CMR 10.00), because:

- ☒ the activity has been/is being conducted in an area subject to protection under c. 131, § 40 or the buffer zone without approval from the issuing authority (i.e., a valid Order of Conditions or Negative Determination).



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 9 – Enforcement Order
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

DEP File Number: _____

B. Findings (cont.)

☐ the activity has been/is being conducted in an area subject to protection under c. 131, § 40 or the buffer zone in violation of an issuing authority approval (i.e., valid Order of Conditions or Negative Determination of Applicability) issued to:

Name _____

Dated _____

File Number _____

Condition number(s) _____

☐ The Order of Conditions expired on (date): _____ Date _____

☐ The activity violates provisions of the Certificate of Compliance.

☐ The activity is outside the areas subject to protection under MGL c.131 s.40 and the buffer zone, but has altered an area subject to MGL c.131 s.40.

☒ Other (specify):

The work within 100 feet of Spy Pond was performed in violation of the Wetlands Protection Act, Town of Arlington Wetlands Protection Bylaw, Title V, Art. 8 of the Town Bylaws and the Commission's Wetlands Regulations, as work was performed without approval from the Commission.

C. Order

The issuing authority hereby orders the following (check all that apply):

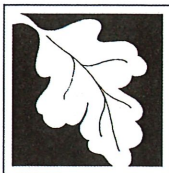
- ☒ The property owner, his agents, permittees, and all others shall immediately cease and desist from any activity affecting the Buffer Zone and/or resource areas.
- ☒ Resource area alterations resulting from said activity shall be corrected and the resource areas returned to their original condition.

☐ A restoration plan shall be filed with the issuing authority on or before _____ Date _____

for the following:

Stop all work immediately. Install sedimentation barriers and erosion controls to protect Spy Pond, such as jute mat or another acceptable alternative. Attend the 9/5/2019 or 9/19/2019 Arlington Conservation Commission meeting with appropriate Town Parties and Departments to determine an appropriate restoration plan.

The restoration shall be completed in accordance with the conditions and timetable established by the issuing authority.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 9 – Enforcement Order
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

DEP File Number: _____

C. Order (cont.)

- ☐ Complete the attached Notice of Intent (NOI). The NOI shall be filed with the Issuing Authority on or before:

Date

for the following:

No further work shall be performed until a public hearing has been held and an Order of Conditions has been issued to regulate said work.

- ☒ The property owner shall take the following action (e.g., erosion/sedimentation controls) to prevent further violations of the Act:

Immediately install a sedimentation barrier parallel to the Spy Pond shoreline at the water side of the clearing; Erosion control shall be a jute mat, or other acceptable alternatives.

Failure to comply with this Order may constitute grounds for additional legal action. Massachusetts General Laws Chapter 131, Section 40 provides: "Whoever violates any provision of this section (a) shall be punished by a fine of not more than twenty-five thousand dollars or by imprisonment for not more than two years, or both, such fine and imprisonment; or (b) shall be subject to a civil penalty not to exceed twenty-five thousand dollars for each violation". Each day or portion thereof of continuing violation shall constitute a separate offense.

D. Appeals/Signatures

An Enforcement Order issued by a Conservation Commission cannot be appealed to the Department of Environmental Protection, but may be filed in Superior Court.

Questions regarding this Enforcement Order should be directed to:

Emily Sullivan

Name

781-316-3012

Phone Number

Mon-Wed 8am-4pm, Thur 8am-7pm, Fri 8am-12pm

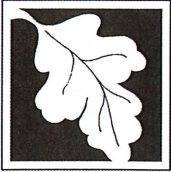
Hours/Days Available

Issued by:

Arlington

Conservation Commission

Conservation Commission signatures required on following page.



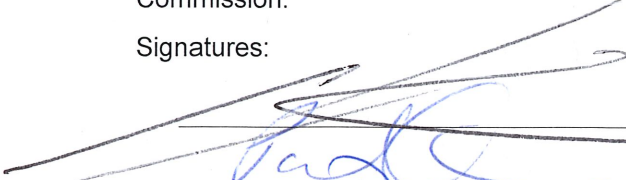

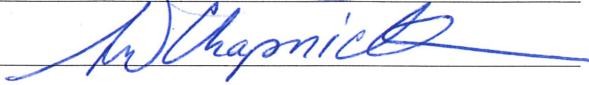

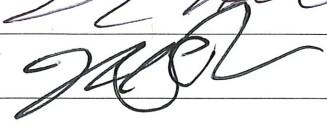
Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 9 – Enforcement Order
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

DEP File Number: _____

D. Appeals/Signatures (cont.)

In a situation regarding immediate action, an Enforcement Order may be signed by a single member or agent of the Commission and ratified by majority of the members at the next scheduled meeting of the Commission.

Signatures:

Signature of delivery person or certified mail number



TOWN OF ARLINGTON

730 Massachusetts Ave.
Arlington, MA 02476
781-316-3012

ARLINGTON CONSERVATION COMMISSION

Notice of Enforcement Order

August 15, 2019

Mr. Peter Howard
39 Wellington Street
Arlington, MA 02476

RE: Tree and Vegetation Clearing on Adjacent Town-Owned Property, 0-Lot Pond Lane Parcel ID 121-6-2

Dear Mr. Peter Howard,

It has come to the Conservation Commission's attention that you undertook the clearcutting of vegetation including approximately 37 trees, ranging from 1 to 9 inches in diameter on town-owned land abutting your property to the east, without Conservation Commission approval. The land is owned by the Park and Recreation Commission which did not conduct this activity or authorize it. One small caliper tree was planted in the area, as well as some shrubs.

This site is within the 100-foot Buffer Zone/Adjacent Upland Resource Area associated with Spy Pond, which are Wetland Resource Areas regulated by the Conservation Commission. Work in this area requires review and permission by the Conservation Commission under the State Wetlands Protection Act (G.L. c. 131, § 40) and the Town of Arlington Wetlands Protection Bylaw (Title V, Article 8 of the Town Code). Since this is Town-owned land, work in this area also would have required review and permission by the Park and Recreation Commission.

Arlington's Conservation Agent conducted an inspection of the site to determine the extent of non-compliance on August 6, 2019. Please see the attached pictures from the site visit, documenting the vegetation and tree removal with before and after photos. Based on the inspection, as well as conversations with the Arlington Tree Warden and Arlington Boys and Girls Club, the Commission believes you contracted the illegal work. Additionally, a hose watering some of the newly planted shrubs runs from your property, under your fence, and onto the site (Photo 5).

Please read the enclosed Enforcement Order. Per the order, you are required to immediately install sedimentation barriers and erosion controls to protect Spy Pond, as well as develop a restoration plan to restore the site back to its previous state, submitted to the Commission in time for its September 5, 2019 meeting where it will be discussed. The restoration plan shall conform to the plan requirements in Arlington's Wetland Regulations. You are also required to fund all associated restoration costs. You may also be subject to additional fines and fees pursuant to the town's Tree Warden.

Please do not hesitate to contact the Conservation Commission with any questions regarding this matter.

Sincerely,

TOWN HALL, 730 MASSACHUSETTS AVENUE, ARLINGTON, MA 02476
(781) 316-3012

Emily Sullivan
Environmental Planner & Conservation Agent, Town of Arlington
esullivan@town.arlington.ma.us
(781) 316-3012

Cc: Park and Recreation Commission
Department of Public Works
Town Counsel, D. Heim
Ms. Aimee Laura Taberner, 41 Wellington Street
MassDEP – Northeast Regional Office
File



Photo 1. Photo of site after it was clear cut from Wellington Street (date: August 6, 2019).



Photo 2. Photo of site after it was clear cut from Spy Pond's bank (date: August 6, 2019).



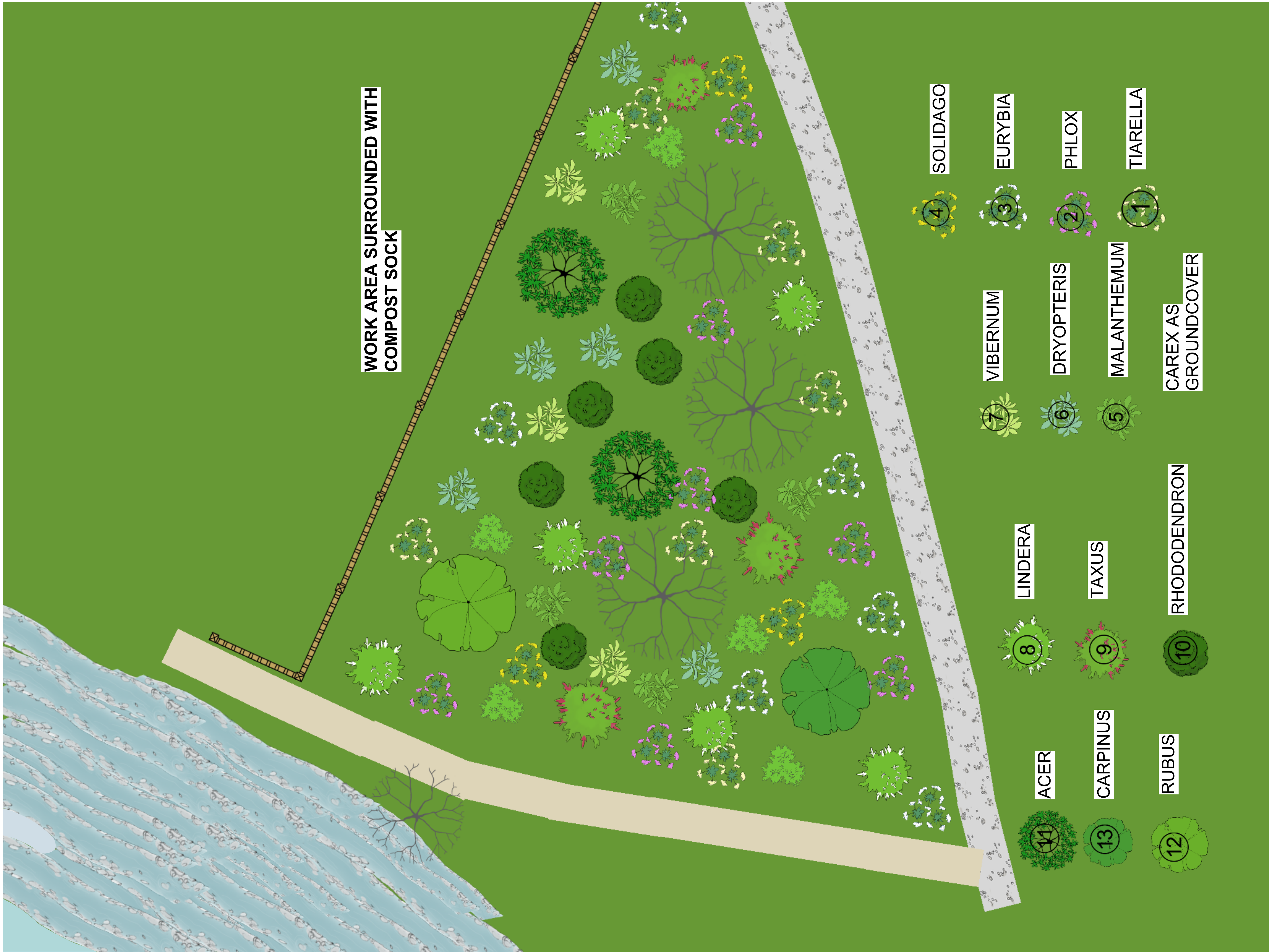
Photo 3. Photo of the town-owned property before it was clear cut (source: Google Street View, July 2018).



Photo 4. Example of an existing tree stump after site was clear cut (date: August 6, 2019).



Photo 5. Photo of newly planted shrubs on the site, with sprinkler leading to 41 Wellington Street (date: August 6, 2019).



1 Plan View
Scale: 1/4" = 1'-0"

A YARD AND A HALF LANDSCAPING COOPERATIVE, INC.

Title HOWARD CONSERVATION PROJECT			
Drawing Number TS-H-01		Drawn By T. SMITH	Date 4/17/2020
CAD File Name HOWARD_39_Wellington_Street			



Client Howard Residence
Address 39 Wellington St
City,State,Zip Arlington MA. 02476

Job Description Conservation Planting

Botanical Name	Benefits	Description	Unit Price	Quantity	Extended Cost	Location on Property	Plan ID
Acer pensylvanicum Striped Maple	HP, Pol,Sh	2gal		1	0		
Lindera benzoin Spicebush	HP, Pol,Birds,Bees	3gal		1	0		
Rhododendron maximum Great Rosebay	HP,Bee,But	24"-30"		1	0		
Viburnum acerfolium Maple Leaf Viburnum	HP,Pol,Bees,But,Birds,	3gal		2	0		
Viburnum lentago Nanyberry	HP,Pol,Bees,But,Birds,	3gal		1	0		
Taxus canadensis American Yew	Pol,Birds	18-24"		3	0		
Rubus hispidus Creeping Dewberry	HP,Birds,Bees	4"		15	0		
Phlox divaricata Woodland Phlox	HP,Pol,Bees,But,	1qt		12	0		
Carex pensylvanica Pennsylvania Sedge plug	HP Pol,	plug		200	0		
Maianthemum canadense Canada Mayflower	Pol,Birds,Bees	3"		50	0		
Eurbia divaricata Wood Aster	HP,Pol,Birds, Bees	2qt		12	0		
Eurybia macrophylla	HP,Pol,Birds, Bees	1qt		12	0		
Dryopteris marginalis Marginal Fern	Pol	2qt		12	0		
Solidago caesia Wreath Goldenrod	HP,Pol,Birds,But,Bees	1gal		15	0		
Tiarella cordifolia	HP,Pol,Bees	plug		50	0		
					0		
					0		
					0		
HP=Host Plant					0		
Pol=Pollinator					0		
Bee=Bees					0		
But=Butterfly					0		
Bird=Bird					0		
Sh=Shelter					0		
					0		
					0		
					0		



Town of Arlington, Massachusetts

Notice of Intent: 1297 Massachusetts Ave

Summary:

MassDEP File #091-0321

This Notice of Intent (NOI) was first presented to the Conservation Commission at its 04/16/2020 meeting. It is strongly encouraged that members of the public submit written comment for this NOI to the Conservation Agent in advance of the hearing, by emailing Emily Sullivan at esullivan@town.arlington.ma.us. All materials submitted for this NOI can be found on the Commission's agenda and minutes page, under the agenda for the 05/07/2020 meeting.

Hearing Summary:

This project proposes the excavation and remediation of soil contaminated by commercial kitchen soy bean oil grease within the 100-ft Wetlands Buffer.

ATTACHMENTS:

Type	File Name	Description
□	Notice of Intent 1297_Mass_Ave_NOI_Packet_Redacted.pdf	1297 Mass Ave NOI Packet
□	Notice of Intent 1297_Mass_Ave_Supplemental_Materials.pdf	1297 Mass Ave Supplemental Materials

TRANSMITTAL

March 4, 2020

Emily Sullivan
Environmental Planner & Conservation Agent
Town of Arlington Conservation Commission
730 Massachusetts Avenue, Annex
Arlington, Massachusetts 02476

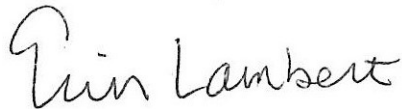
**RE: Wetlands Protection Agency Notice of Intent
D'Agostino's Delicatessen
1297 Massachusetts Avenue, Arlington, MA**

Item No.	Quantity	Description
1	7	WPA Form 3
2	7	Bylaw Filing Fees and Transmittal Form
3	7	Bylaw Filing and State Filing Fees Check
4	7	Abutters List and Abutter Notification Letter Copy
5	7	Affidavit of Service and Copies of Certified Mail Receipts
6	7	Legal Notice of Charge
7	7	Project Narrative
8	7	Site Plans (24x36)
9	7	USGS Site Location Map
10	7	FEMA Site Floodplain Map
11	7	Site Photo Log
12	1	Electronic Copy of Packet Submission

If you have any questions, or require additional information, please contact me at (603) 731-9883.

Very truly yours,

WILCOX & BARTON, INC.



Erin R. Lambert, P.E., LEED AP
Associate Vice President



Massachusetts Department of Environmental Protection

eDEP Transaction Copy

Here is the file you requested for your records.

To retain a copy of this file you must save and/or print.

Username: **RRUCKER**

Transaction ID: **1179566**

Document: **WPA Form 3 - NOI**

Size of File: **249.37K**

Status of Transaction: **In Process**

Date and Time Created: **3/3/2020:4:14:44 PM**

Note: This file only includes forms that were part of your transaction as of the date and time indicated above. If you need a more current copy of your transaction, return to eDEP and select to "Download a Copy" from the Current Submittals page.

Massachusetts Department of Environmental
Protection
Bureau of Resource Protection - Wetlands
WPA Form 3 - Notice of Intent
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
MassDEP File #:
eDEP Transaction #:1179566
City/Town:ARLINGTON

A.General Information

1. Project Location:

a. Street Address	1297 MASSACHUSETTS AVENUE		
b. City/Town	ARLINGTON	c. Zip Code	02476
d. Latitude	42.42458N	e. Longitude	71.18177W
f. Map/Plat #	59	g.Parcel/Lot #	10.D

2. Applicant:

☐ Individual ☒ Organization

a. First Name		b. Last Name	
c. Organization	P&D REALTY		
d. Mailing Address	109 REFLECTION DRIVE		
e. City/Town	SANDWICH	f. State	MA
g. Zip Code			02563
h. Phone Number		i. Fax	
j. Email			

3. Property Owner:

☐ more than one owner

a. First Name		b. Last Name	
c. Organization	P&D REALTY		
d. Mailing Address	109 REFLECTION DRIVE		
e. City/Town	SANDWICH	f. State	MA
g. Zip Code			02563
h. Phone Number		i. Fax	
j. Email			

4. Representative:

a. First Name	RUSSELL	b. Last Name	BARTON
c. Organization	WILCOX & BARTON, INC.		
d. Mailing Address	#1B COMMONS DRIVE, UNIT 12B		
e. City/Town	LONDONDERRY	f. State	NH
g. Zip Code			03053
h. Phone Number	603-369-4190	i. Fax	
j. Email			rbarton@wilcoxandbarton.com

5. Total WPA Fee Paid (Automatically inserted from NOI Wetland Fee Transmittal Form):

a. Total Fee Paid	110.00	b. State Fee Paid	42.50	c. City/Town Fee Paid	67.50
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6. General Project Description:

THE PROPOSED PROJECT INVOLVES THE EXCAVATION AND REMEDIATION OF CONTAMINATED SOIL FROM A COMMERCIAL KITCHEN GREASE STORAGE CONTAINER SPILL.

7a. Project Type:

- | | |
|---|--|
| 1. <input type="checkbox"/> Single Family Home | 2. <input type="checkbox"/> Residential Subdivision |
| 3. <input type="checkbox"/> Limited Project Driveway Crossing | 4. <input checked="" type="checkbox"/> Commercial/Industrial |
| 5. <input type="checkbox"/> Dock/Pier | 6. <input type="checkbox"/> Utilities |
| 7. <input type="checkbox"/> Coastal Engineering Structure | 8. <input type="checkbox"/> Agriculture (eg., cranberries, forestry) |
| 9. <input type="checkbox"/> Transportation | 10. <input type="checkbox"/> Other |

7b. Is any portion of the proposed activity eligible to be treated as a limited project subject to 310 CMR 10.24 (coastal) or 310

Massachusetts Department of Environmental Protection

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City/Town:ARLINGTON

CMR 10.53 (inland)?

1. ☐ Yes ☒ No

If yes, describe which limited project applies to this project:

2. Limited Project

8. Property recorded at the Registry of Deeds for:

a. County:

b. Certificate:

c. Book:

d. Page:

SOUTHERN MIDDLESEX

21176

327

B. Buffer Zone & Resource Area Impacts (temporary & permanent)

1. Buffer Zone & Resource Area Impacts (temporary & permanent):

☐ This is a Buffer Zone only project - Check if the project is located only in the Buffer Zone of a Bordering Vegetated Wetland, Inland Bank, or Coastal Resource Area.

2. Inland Resource Areas: (See 310 CMR 10.54 - 10.58, if not applicable, go to Section B.3. Coastal Resource Areas)

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
---------------	-----------------------------	-------------------------------

a. ☐ Bank

1. linear feet

2. linear feet

b. ☐ Bordering Vegetated Wetland

1. square feet

2. square feet

c. ☐ Land under Waterbodies and Waterways

1. Square feet

2. square feet

3. cubic yards dredged

d. ☐ Bordering Land Subject to Flooding

1. square feet

2. square feet

3. cubic feet of flood storage lost

4. cubic feet replaced

e. ☐ Isolated Land Subject to Flooding

1. square feet

2. cubic feet of flood storage lost

3. cubic feet replaced

f. ☒ Riverfront Area

Mill Brook

1. Name of Waterway (if any)

2. Width of Riverfront Area (check one)

☐ 25 ft. - Designated Densely Developed Areas only

☐ 100 ft. - New agricultural projects only

☒ 200 ft. - All other projects

3. Total area of Riverfront Area on the site of the proposed project

53736

square feet

4. Proposed Alteration of the Riverfront Area:

2700

2700

0

a. total square feet

b. square feet within 100 ft.

c. square feet between 100 ft. and 200 ft.

Massachusetts Department of Environmental Protection

Bureau of Resource Protection - Wetlands

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Provided by MassDEP:
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City/Town:ARLINGTON

5. Has an alternatives analysis been done and is it attached to this NOI? ☐ Yes ☒ No

6. Was the lot where the activity is proposed created prior to August 1, 1996? ☒ Yes ☐ No

3.Coastal Resource Areas: (See 310 CMR 10.25 - 10.35)

Resource Area Size of Proposed Alteration Proposed Replacement (if any)

a. ☐ Designated Port Areas Indicate size under Land under the ocean below,

b. ☐ Land Under the Ocean

1. square feet

2. cubic yards dredged

c. ☐ Barrier Beaches Indicate size under Coastal Beaches and/or Coastal Dunes, below

d. ☐ Coastal Beaches

1. square feet

2. cubic yards beach nourishment

e. ☐ Coastal Dunes

1. square feet

2. cubic yards dune nourishment

f. ☐ Coastal Banks

1. linear feet

g. ☐ Rocky Intertidal Shores

1. square feet

h. ☐ Salt Marshes

1. square feet

2. sq ft restoration, rehab, crea.

i. ☐ Land Under Salt Ponds

1. square feet

2. cubic yards dredged

j. ☐ Land Containing Shellfish

1. square feet

k. ☐ Fish Runs

Indicate size under Coastal Banks, Inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above

1. cubic yards dredged

l. ☐ Land Subject to Coastal Storm Flowage

1. square feet

4.Restoration/Enhancement

☐ Restoration/Replacement

If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.2.b or B.3.h above, please entered the additional amount here.

a. square feet of BVW

b. square feet of Salt Marsh

5.Projects Involves Stream Crossings

☐ Project Involves Streams Crossings

□ **Massachusetts Department of Environmental Protection**
Bureau of Resource Protection - Wetlands
WPA Form 3 - Notice of Intent
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Provided by MassDEP:
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If the project involves Stream Crossings, please enter the number of new stream crossings/number of replacement stream crossings.

a. number of new stream crossings

b. number of replacement stream crossings

C. Other Applicable Standards and Requirements

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

1. Is any portion of the proposed project located in **Estimated Habitat of Rare Wildlife** as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage of Endangered Species program (NHESP)?

a. ☐ Yes ☒ No

If yes, include proof of mailing or hand delivery of NOI to:
Natural Heritage and Endangered Species
Program
Division of Fisheries and Wildlife
1 Rabbit Hill Road
Westborough, MA 01581

b. Date of map:AUGUST 1, 2017

If yes, the project is also subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18)....

c. Submit Supplemental Information for Endangered Species Review * (Check boxes as they apply)

1. ☐ Percentage/acreage of property to be altered:

(a) within Wetland Resource Area

percentage/acreage

(b) outside Resource Area

percentage/acreage

2. ☐ Assessor's Map or right-of-way plan of site

3. ☐ Project plans for entire project site, including wetland resource areas and areas outside of wetland jurisdiction, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work **

a. ☐ Project description (including description of impacts outside of wetland resource area & buffer zone)

b. ☐ Photographs representative of the site

c. ☐ MESA filing fee (fee information available at: <http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/regulatory-review/mass-endangered-species-act-mesa/mesa-fee-schedule.html>)

Make check payable to "Natural Heritage & Endangered Species Fund" and **mail to NHESP** at above address

Projects altering 10 or more acres of land, also submit:

d. ☐ Vegetation cover type map of site

e. ☐ Project plans showing Priority & Estimated Habitat boundaries

d. OR Check One of the following

1. ☐ Project is exempt from MESA review. Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, <http://www.mass.gov/eea/agencies/dfg/dfw/laws-regulations/cmr/321-cmr-1000-massachusetts-endangered-species-act.html#10.14>; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.)

2. ☐ Separate MESA review ongoing.

a. NHESP Tracking Number

b. Date submitted to NHESP

□ **Massachusetts Department of Environmental Protection**

Bureau of Resource Protection - Wetlands

WPA Form 3 - Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
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eDEP Transaction #:1179566
City/Town:ARLINGTON

3. ☐ Separate MESA review completed.

Include copy of NHESP "no Take" determination or valid Conservation & Management Permit with approved plan.

* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review...

2. For coastal projects only, is any portion of the proposed project located below the mean high waterline or in a fish run?

a. ☒ Not applicable - project is in inland resource area only

b. ☐ Yes ☐ No

If yes, include proof of mailing or hand delivery of NOI to either:

South Shore - Cohasset to Rhode Island, and the Cape & Islands:

North Shore - Hull to New Hampshire:

Division of Marine Fisheries -
Southeast Marine Fisheries Station
Attn: Environmental Reviewer
836 S. Rodney French Blvd
New Bedford, MA 02744

Division of Marine Fisheries -
North Shore Office
Attn: Environmental Reviewer
30 Emerson Avenue
Gloucester, MA 01930

If yes, it may require a Chapter 91 license. For coastal towns in the Northeast Region, please contact MassDEP's Boston Office.

For coastal towns in the Southeast Region, please contact MassDEP's Southeast Regional office.

3. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?

a. ☐ Yes ☒ No

If yes, provide name of ACEC (see instructions to WPA Form 3 or DEP Website for ACEC locations). **Note:** electronic filers click on Website.

b. ACEC Name

4. Is any portion of the proposed project within an area designated as an Outstanding Resource Water (ORW) as designated in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00?

a. ☐ Yes ☒ No

5. Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L.c. 131, § 40A) or the Coastal Wetlands Restriction Act (M.G.L.c. 130, § 105)?

a. ☐ Yes ☒ No

6. Is this project subject to provisions of the MassDEP Stormwater Management Standards?

a. ☒ Yes, Attach a copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) and check if:

1. Applying for Low Impact Development (LID) site design credits (as described in Stormwater Management Handbook Vol.2, Chapter 3)

2. A portion of the site constitutes redevelopment

3. Proprietary BMPs are included in the Stormwater Management System

b. ☐ No, Explain why the project is exempt:

1. Single Family Home

☐ **Massachusetts Department of Environmental Protection**

Bureau of Resource Protection - Wetlands

WPA Form 3 - Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File #:

eDEP Transaction #:1179566

City/Town:ARLINGTON

☐ 2. Emergency Road Repair

☐ 3. Small Residential Subdivision (less than or equal to 4 single-family houses or less than or equal to 4 units in multi-family housing project) with no discharge to Critical Areas.

D. Additional Information

Applicants must include the following with this Notice of Intent (NOI). See instructions for details.

Online Users: Attach the document transaction number (provided on your receipt page) for any of the following information you submit to the Department by regular mail delivery.

1. USGS or other map of the area (along with a narrative description, if necessary) containing sufficient information for the Conservation Commission and the Department to locate the site. (Electronic filers may omit this item.)
- ☒ 2. Plans identifying the location of proposed activities (including activities proposed to serve as a Bordering Vegetated Wetland [BVW] replication area or other mitigating measure) relative to the boundaries of each affected resource area.
- ☒ 3. Identify the method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s). Determination of Applicability, Order of Resource Area Delineation, etc.), and attach documentation of the methodology.
- ☒ 4. List the titles and dates for all plans and other materials submitted with this NOI.

a. Plan Title:	b. Plan Prepared By:	c. Plan Signed/Stamped By:	c. Revised Final Date:	e. Scale:
SITE PLAN	RUSSEL S. RUCKER	DAVID L. FROTHINGHAM	3/4/2020	1" = 20'
CONSTRUCTION & EROSION CONTROL DETAILS	RUSSEL S. RUCKER	DAVID L. FROTHINGHAM	3/4/2020	N.T.S.

- ☐ 5. If there is more than one property owner, please attach a list of these property owners not listed on this form.
- ☐ 6. Attach proof of mailing for Natural Heritage and Endangered Species Program, if needed.
- ☐ 7. Attach proof of mailing for Massachusetts Division of Marine Fisheries, if needed.
- ☒ 8. Attach NOI Wetland Fee Transmittal Form.
- ☒ 9. Attach Stormwater Report, if needed.

□ **Massachusetts Department of Environmental Protection**
Bureau of Resource Protection - Wetlands
WPA Form 3 - Notice of Intent
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
MassDEP File #:
eDEP Transaction #:1179566
City/Town:ARLINGTON

E. Fees

1. Fee Exempt: No filing fee shall be assessed for projects of any city, town, county, or district of the Commonwealth, federally recognized Indian tribe housing authority, municipal housing authority, or the Massachusetts Bay Transportation Authority.

Applicants must submit the following information (in addition to pages 1 and 2 of the NOI Wetland Fee Transmittal Form) to confirm fee payment:

2. Municipal Check Number

3. Check date

4. State Check Number

5. Check date

6. Payer name on check: First Name

7. Payer name on check: Last Name

F. Signatures and Submittal Requirements

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the wetlands regulations, 310 CMR 10.05(5)(a).

I further certify under penalties of perjury that all abutters were notified of this application, pursuant to the requirements of M.G.L. c. 131, § 40. Notice must be made by Certificate of Mailing or in writing by hand delivery or certified mail (return receipt requested) to all abutters within 100 feet of the property line of the project location.

Sam D'Agostino

3/3/2020

1. Signature of Applicant

2. Date

Sam D'Agostino

3/3/2020

3. Signature of Property Owner(if different)

4. Date

Russell Barton

3/3/2020

5. Signature of Representative (if any)

6. Date

For Conservation Commission:

Two copies of the completed Notice of Intent (Form 3), including supporting plans and documents, two copies of the NOI Wetland Fee Transmittal Form, and the city/town fee payment, to the Conservation Commission by certified mail or hand delivery.

For MassDEP:

One copy of the completed Notice of Intent (Form 3), including supporting plans and documents, one copy of the NOI Wetland Fee Transmittal Form, and a **copy** of the state fee payment to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery.

Other:

If the applicant has checked the "yes" box in Section C, Items 1-3, above, refer to that section and the Instructions for additional submittal requirements.

The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 3 - Notice of Wetland Fee Transmittal
Form

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
MassDEP File #:
eDEP Transaction #:1179566
City/Town:ARLINGTON

A. Applicant Information

1. Applicant:

a. First Name		b. Last Name	
c. Organization	P&D REALTY		
d. Mailing Address	109 REFLECTION DRIVE		
e. City/Town	SANDWICH	f. State	MA
g. Zip Code	02563		
h. Phone Number		i. Fax	
j. Email			

2. Property Owner:(if different)

a. First Name		b. Last Name	
c. Organization	P&D REALTY		
d. Mailing Address	109 REFLECTION DRIVE		
e. City/Town	SANDWICH	f. State	MA
g. Zip Code	02563		
h. Phone Number		i. Fax	
j. Email			

3. Project Location:

a. Street Address	1297 MASSACHUSETTS AVENUE	b. City/Town	ARLINGTON
-------------------	---------------------------	--------------	-----------

Are you exempted from Fee? ☐ (YOU HAVE SELECTED 'NO')

Note: Fee will be exempted if you are one of the following:

- City/Town/County/District
- Municipal Housing Authority
- Indian Tribe Housing Authority
- MBTA

State agencies are only exempt if the fee is less than \$100

B. Fees

Activity Type	Activity Number	Activity Fee	RF Multiplier	Sub Total
A.) WORK ON SINGLE FAMILY LOT; ADDITION, POOL, ETC.;	1	110.00		110.00
		City/Town share of filling fee	State share of filing fee	Total Project Fee
		\$67.50	\$42.50	\$110.00

Bylaw Filing Fees and Transmittal Form

Rules:

1. Fees are payable at the time of filing the application and are non-refundable.
2. Fees shall be calculated per schedule below.
3. Town, County, State, and Federal Projects are exempt from fees.
4. These fees are in addition to the fees paid under M.G.L. Ch. 131, s.40 (ACT).

Fee Schedule (ACC approved 1/8/15):

\$	No./Area	Category
		(R1) RDA - \$150 local fee, no state fee
\$200	1	(N1) Minor Project - \$200 (house addition, tennis court, swimming pool, utility work, work in/on/or affecting any body of water, wetland or floodplain).
		(N2) Single Family Dwelling - \$600
		(N3) Multiple Dwelling Structures - \$600 + \$100 per unit all or part of which lies within 100 feet of wetlands or within land subject to flooding.
		(N4) Commercial, Industrial, and Institutional Projects - \$800 + 50¢/s.f. wetland disturbed; 2¢/s.f. land subject to flooding or buffer zone disturbed.
		(N5) Subdivisions - \$600 + \$4/l.f. feet of roadway sideline within 100 ft. of wetlands or within land subject to flooding.
		(N6) Other Fees - copies, printouts; per public records law
		(N7) Minor Project Change - \$50
		(N8) Work on Docks, Piers, Revetments, Dikes, etc - \$4 per linear foot
		(N9) Resource Boundary Delineation (ANRAD) - \$1 per linear foot
		(N10) Certificate of Compliance (COC or PCOC) - No charge if before expiration of Order, \$200 if after that date.
		(N11) Amendments - \$300 or 50% of original local filing fee, whichever is less.
		(N12) Extensions -
		a. Single family dwelling or minor project - \$100.
		b. Other - \$150.
		(N13) Consultant Fee -per estimate from consultant
\$200	TOTAL	

Note: Submit this form along with the forms submitted for the ACT - the "Wetlands Filing Fee Calculations Worksheet," and the "Notice of Intent Fee Transmittal Form."

Bank of America

ERIN R LAMBERT

3/4/2020

54-49/114 NH
1675

Date

Pay Town of Arlington \$ 267.50
to the order of Two-hundred sixty-seven and 50/100 Dollars

Richard Curren

Bank of America

ACH R/T 011400495

Memo NDI Fees

Erin R. Lambert

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NOI for Site Remediation
1297 Massachusetts Avenue, Arlington, MA 02476

Map	Block	Lot	Property Owner	Mailing Address	Quantity
Owner/Applicant:					
59	1	10.D	P&D Realty	109 Reflection Drive Sandwich, MA 02563	1
Abutters:					
59	1	11	1309-1323 Mass Ave, LLC.	12 Pepper Hill Drive Winchester, MA 01890	2
59	1	12	30 Park Ave Associates, LLP.	PO Box 288 Arlington, MA 02476	3
59	1	7	Lacourt Enterprises, LLC.	30 College Avenue Somerville, MA 02144	4
59.A	1	1.1	Xiaohe Ma	1283 Massachusetts Avenue, Unit 1 Arlington, MA 02476	5
59.A	1	1.2	Gregory R. Josephs & Brian D. Stricker	1283-1285 Mass. Avenue, Unit 2 Arlington, MA 02476	6
59.A	1	1.3	Radhika Sriram	1283-1285 Mass. Avenue, Unit 3 Arlington, MA 02476	7
59	1	9	Sean Galvin Trustee	630 High Street Medford, MA 02115	8
59	1	19	30 Park Ave Associates, LLP.	PO Box 288 Arlington, MA 02476	Duplicate
170	2	1	Nigoghos & Carolyn Atinizian	545 Concord Avenue, Suite 400 Cambridge, MA 02138	9
170	2	2	Nicolas Perhandis Trustee	163 Hillside Avenue Arlington, MA 02476	10
170	2	3	Cambridge Savings Bank	1374 Massachusetts Avenue Cambridge, MA 02138	11
170	2	4	Cambridge Savings Bank	1374 Massachusetts Avenue Cambridge, MA 02138	Duplicate
170	3	5	John R. & Mark Wanamaker Trust	1298 Massachusetts Avenue Arlington, MA 02476	12
170	3	6	John R. Wanamaker	41 Dyer Street North Billerica, MA 01862	13
170	3	7	Eleanor Leclain & John Kevin Clark	1292-1294 Massachusetts Avenue Arlington, MA 02476	14
165.A	3	1288	Melissa Dolan	1288 Massachusetts Avenue, Unit 1 Arlington, MA 02476	15
165.A	3	1290	Jesse D. & Regina M. O'Brien	1290 Massachusetts Avenue, Unit 2 Arlington, MA 02476	16

Abutters List Verified: 03/04/2020

Abutter Notification

Notification to Abutters Under the Massachusetts Wetlands Protection Act And Arlington Wetlands Protection Bylaw

In accordance with the second paragraph of Massachusetts General Laws Chapter 131, Section 40, and the Arlington Wetlands Protection Bylaw, you are hereby notified of the following:

The Conservation Commission will hold a public hearing in the second floor conference room of the Town Hall Annex, 730 Massachusetts Avenue, Arlington, on March 19, 2020, at 7:30 PM in accordance with the provisions of the Mass. Wetlands Protection Act (M.G.L. Ch. 131, s. 40, as amended) and the Town of Arlington Bylaws Article 8, Bylaw for Wetland Protection, for a Notice of Intent from P&D Realty, for remediation of contaminated soils from a commercial kitchen, grease storage container spill at 1297 Massachusetts Avenue, within 200 feet of a Riverfront area, on Assessor's Property Map #59, Lot #10D.

A copy of the application and accompanying plans are available for inspection Mon. - Thurs. 8am-4pm and Fri. 8am-noon at the Conservation Commission office, first floor of the Town Hall Annex, 730 Massachusetts Avenue, Arlington, MA 02476. For more information call the applicant at 781-756-8071, the project engineer manager at 603-369-4190 x502, or the Arlington Conservation Commission at 781-316-3012, or the DEP Northeast Regional Office at 978-694-3200.

NOTE: Notice of the Public Hearing will be published at least five (5) business days in advance in *The Arlington Advocate* and will also be posted at least 48 hours in advance in the Arlington Town Hall.

The meeting information for your hearing is:

Date: Thursday, March 19, 2020

Time: 7:30 PM

Affidavit of Service

(Please return to Conservation Commission)

I, Russel Rucker, being duly sworn, do hereby state as follows: on March 4, 2020, I mailed a "Notification to Abutters" in compliance with the second paragraph of Massachusetts General Laws, Chapter 131, s.40, the DEP Guide to Abutter Notification dated April 8, 1994, and the Arlington Wetlands Protection Bylaw, Title V, Article 8 of the Town of Arlington Bylaws in connection with the following matter:

Remediation of contaminated soils from a commercial kitchen, grease storage container spill at 1297 Massachusetts Avenue, Arlington, MA.

The form of the notification, and a list of the abutters to whom it was provided and their addresses, are attached to this Affidavit of Service.

Signed under the pains and penalties of perjury, this 4th day of March 2020.



Name

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Legal Notice Charge Authorization

DATE: March 4, 2020

TO: legals@wickedlocal.com

I hereby authorize Community Newspapers to bill me directly for the legal notice to be published in the Arlington Advocate newspaper on March 11, 2020 for a public hearing with the Arlington Conservation Commission to review a project at the following location:
1297 Massachusetts Avenue, Arlington, MA

Thank you.

Signed: Guin Lambert

Send bill to:

Wilcox & Barton, Inc. (Address)
PO Box 1630
Derry, NH 03038
603-369-4190 x527 (Phone)

Project Narrative

Project: D'Agostino's Delicatessen Grease Remediation
Address: 1297 Massachusetts Avenue, Arlington, Massachusetts
Owner/Applicant: P&D Realty

The project involves the remediation of contaminated soil from a kitchen grease storage container spill at D'Agostino's Delicatessen. Grease in the storage container has spilled into the area at the top of the bank behind the grease container with some surface runoff on the bank. No spilled grease has impacted Mill Brook at the bottom of the bank, which runs through the project property. Construction activities include the removal and replacement of soil, planting two new trees to replace an existing tree that will be by the excavation, installation of two new traffic bollards behind the grease container, and restoration of areas disturbed during construction activities. An estimated 21 cubic yards of grease-contaminated soil is expected to be removed and replaced with 26 cubic yards of clean, compacted fill. Most of the excavation will take place within the vicinity of the grease container storage area and within the top of the bank behind the grease container. Some surface excavation is expected on the bank to remove grease from the topsoil. A summary of the expected excavation depths at the specified locations is tabulated below.

Excavation & Backfill Calculations

Excavation Volume			
Location	Area (sf)	Depth (ft)	Volume (cf)
Grease container	168	2.0	336
Top of bank	156	1.0	156
Bank	144	0.5	72
Total			564

Fill Volume

Fill Vol. = Excav. Vol. x Compaction Factor
Fill Vol. = 564 cf x 1.25
Fill Vol. = 705 cf
Fill Vol. = 26 cy

In order to complete removal of contaminated soil, an existing 12-inch diameter at breast height (DBH) deciduous tree near the top of the bank behind the grease container shall be removed prior to start of excavation. The base of the tree is in the expected excavation area, and a majority of its base roots are expected to be impacted by excavation activity. There shall be 2 new trees planted at the top of the bank during site restoration activities to replace the removed tree. Impacts to other trees on the bank are not expected given the shallow depth of exaction on the bank. However, the contractor shall notify the engineer immediately should excavation activities require the removal of additional tree roots. New trees planted to replace the removed tree shall be Red Maple (*Acer Rebrum*) of 2.5-inch to 3.5-inch caliper.

Stormwater Management and Erosion Control

The project property is 1.23-acres (53,736-square feet). Most of the ground cover on the property consists of impervious surfaces for two buildings with associated parking lots and driveways, resulting in a total 33,000-square feet of impervious cover (61% of total site area). A catch basin east of the project area captures most of the surface runoff on the property. The rest of the surface runoff is conveyed to Mill Brook, which runs through the northern section of the property. All of the property is within the 200-foot riverfront area, and approximately 36,500-square feet is within 100-feet of Mill Brook. The project area is limited to a 2,700-square foot area along the upper bank and is entirely within 100-feet of Mill Brook.

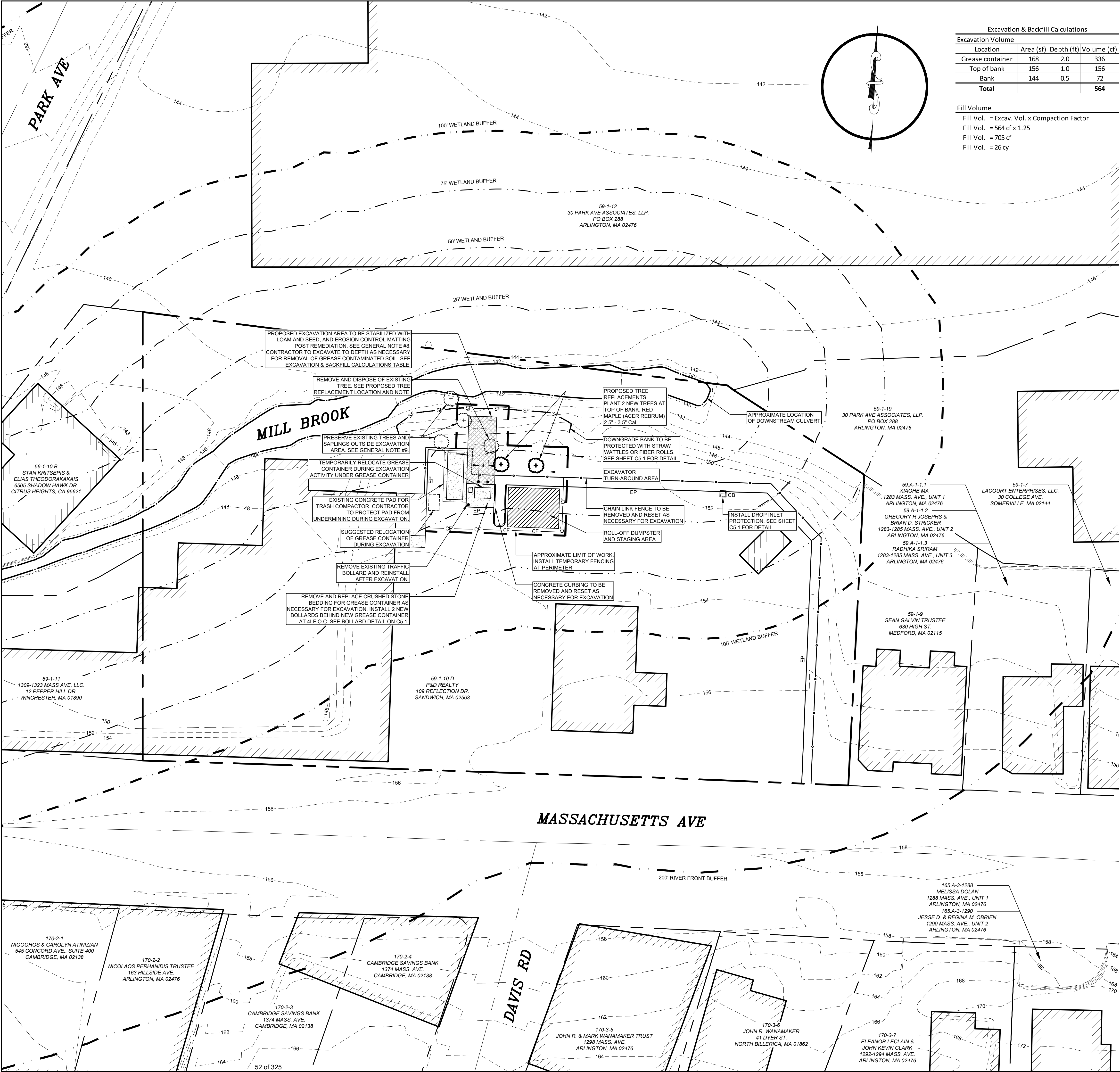
Most of the stormwater improvements post-construction shall be qualitative. No additional impervious area is proposed for the project, and all disturbed areas will be stabilized to a state equal to or better than their condition prior to construction. The existing bank in the project area is loose and uneven with some vegetative cover and slopes of 2:1 and greater. The contractor shall stabilize the bank with compacted fill at a slope of 2:1 or less where permitted, install erosion control matting, and reseed the disturbed areas. To replace the removal of the existing tree in the excavation zone of the project area, 2 new trees shall be planted at the top of the bank within the project area. Adding new trees and enhancing the vegetative cover on the slope further helps to protect Mill Brook from surface pollutants. Stormwater runoff from the project area will be at or below the current runoff rates due to the enhance vegetative cover.

Prior to any earth disturbance, temporary fencing, perimeter barriers, and inlet protections will be installed around the project area. Temporary fencing will be installed at the limits of disturbance for each phase of construction to prevent the expansion of disturbed areas beyond the limits of the phase. Fencing will be inspected weekly and replaced or repaired if damaged. For erosion control, fiber rolls will be placed down gradient of all disturbed areas. The fiber rolls will have a diameter of 9-inches or 12-inches and will be installed with 2-inch x 2-inch x 36-inch wooden stakes placed 10-feet on center. Existing and proposed storm drain inlets will also be protected from the discharge of sediment laden runoff by implementation of fiber rolls. See sheet C5.1 of attached Construction & Erosion Control Details for installation. The fiber rolls will be inspected weekly and after every rain fall event producing runoff. Fiber rolls that are dislodged or damaged will be replaced. Accumulated sediment will be removed when it reaches $\frac{1}{2}$ the exposed height of the fiber roll.

The contractor shall fill and compact excavated areas and restore all disturbed areas with loam and seed. All stockpiles will be encircled with silt fence or fiber rolls to prevent migration of sediment from the stockpile. Erosion control matting shall be installed on the bank to stabilize the slope. The erosion control matting will be inspected weekly and after every rain fall event producing runoff. All disturbed areas which have reached final grade will be seeded and mulched within 48 hours of completion. Seeded areas will be inspected weekly and within 24 hours of all rainfall events of 0.25-inches or greater. Any areas where runoff has displaced the topsoil, seed, or mulch will be repaired immediately. Restoration of the disturbed areas shall be considered stabilize after a minimum of 85% vegetated growth has been established. After the entire site has reached final stabilization, the remaining erosion control measures will be removed within 30 days.

Supporting evidence that the project has sufficient climate change resilience is as followed:

1. The project will not increase impervious area on the site and existing green spaces with sparse vegetation will be reseeded to increase the slope stability of the bank with more dense vegetation. New traffic bollards and planted trees shall help protect the bank as physical barriers.
2. New plantings and vegetation shall revitalize green spaces, decrease total surface runoff in the restored areas, and reduce the amount of common surface pollutants entering Mill Brook.
3. The existing tree to be removed will be replaced with 2 Red Maple trees (native, non-invasive), which are hardy trees, resilient to adverse growing conditions. Restoring disturbed areas with loam and seed also promotes long-lasting ground cover.
4. No new structures are proposed. The existing structures shall be unimpacted by proposed construction activities.



Excavation & Backfill Calculations			
Excavation Volume			
Location	Area (sf)	Depth (ft)	Volume (cf)
Grease container	168	2.0	336
Top of bank	156	1.0	156
Bank	144	0.5	72
Total			564

Fill Volume
Fill Vol. = Excav. Vol. x Compaction Factor
Fill Vol. = 564 cf x 1.25
Fill Vol. = 705 cf
Fill Vol. = 26 cy

LEGEND	
	PROPERTY LINE
	ABUTTER'S PROPERTY LINE
	MAJOR CONTOUR
	MINOR CONTOUR
	BUILDINGS
	ROADWAY CENTERLINE
	EDGE OF PAVEMENT
	CURB
	CONCRETE PAD
	CHAIN LINK FENCE
	EDGE OF WETLAND/WATERWAY
	200' RIVERFRONT BUFFER
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	CATCH BASINS
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	DECIDUOUS TREES

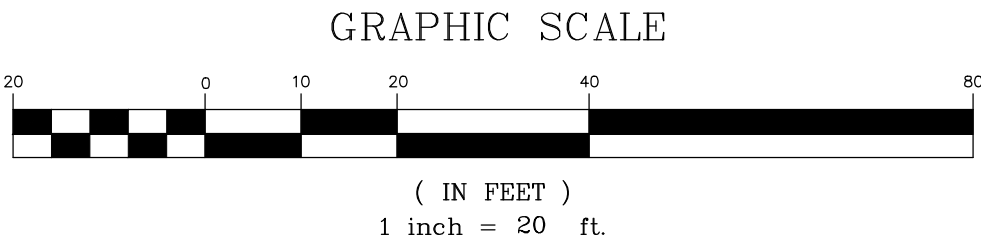
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7. CONTRACTOR WILL NOTIFY ENGINEERS IMMEDIATELY IF SITE CONDITIONS DIFFER FROM WHAT IS SHOWN ON PLAN.
8. CONTRACTOR TO USE NORTH AMERICAN GREEN BONNET SC150BN MATTING FOR ALL EROSION CONTROL MATTING. 70% STRAW / 30% COCONUT FIBER MATRIX.
9. CONTRACTOR SHALL PRESERVE AND PROTECT EXISTING TREE ROOTS. IF ADDITIONAL TREES NEED TO BE IMPACTED FOR REMEDIATION ACTIVITIES CONTACT ENGINEER IMMEDIATELY.

- LANDSCAPING NOTES:
1. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY COORDINATION WITH SUBCONTRACTORS AS REQUIRED TO ACCOMPLISH PLANTING OPERATIONS
2. LANDSCAPING CONTRACTOR SHALL RECEIVE SITE GRADE TO +/- 0.10 FOOT.
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10. FINAL PLACEMENT OF ALL PLANT MATERIALS SHALL BE SUBJECT TO APPROVAL OF OWNER'S REPRESENTATIVE PRIOR TO FINAL PLACEMENT AND BACKFILL. CONTACT OWNER'S REPRESENTATIVE 24-HOURS PRIOR TO PLACEMENT FOR APPROVAL.
11. ALL DISTURBED AREAS, UNLESS OTHERWISE NOTED, TO BE LOAM, SEEDED, AND MULCHED.

EROSION CONTROL SEED		
SEED	BY % MASS	% GERMINATION (MIN)
WINTER RYE 80 (MIN)	80 (MIN)	85
RED FESCUE (CREEPING)	4 (MIN)	80
PERENNIAL GRASS	3 (MIN)	90
RED CLOVER	3 (MIN)	90
OTHER CROP GRASS	0.5 (MAX)	
NOXIOUS WEED SEED	0.5 (MAX)	
INERT MATTER	1.0 (MAX)	

PERMANENT SEED MIX		
SEED	BY % MASS	% GERMINATION (MIN)
RED FESCUE (CREEPING)	50	85
KENTUCKY BLUE	25	85
PERENNIAL RYE GRASS	10	90
RED TOP	10	85
LANDINO CLOVER	5	85



Wilcox & Barton INC.
CIVIL • ENVIRONMENTAL • GEOTECHNICAL

2 CAPITAL PLAZA, SUITE 305
CONCORD, NH 03301
603-369-4190
www.wilcoxandbarton.com

REVISION HISTORY
1.

Issued For

Permitting

ALL DOCUMENTS PREPARED BY WILCOX & BARTON, INC. ARE INSTRUMENTS OF SERVICE IN RESPECT OF THE PROJECT. THEY ARE NOT INTENDED OR REPRESENTED TO BE SUITABLE FOR REUSE BY OWNER OR OTHERS. ANY REUSE WITHOUT WRITTEN VERIFICATION OR ADAPTATION BY WILCOX & BARTON, INC. FOR THE SPECIFIC PURPOSE INTENDED WILL BE AT OWNER'S SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO WILCOX & BARTON, INC. OWNER SHALL INDEMNIFY AND HOLD HARMLESS WILCOX & BARTON, INC. FROM ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES ARISING OUT OF OR RESULTING THEREFROM.

Owner

P&D REALTY

109 REFLECTION DR
SANDWICH, MA

Site

D'AGOSTINO'S
DELICATESSEN

1297 MASS. AVE.
ARLINGTON, MA

Map/Block/Lot: 59/1/10D

Drawing Title

Site Plan

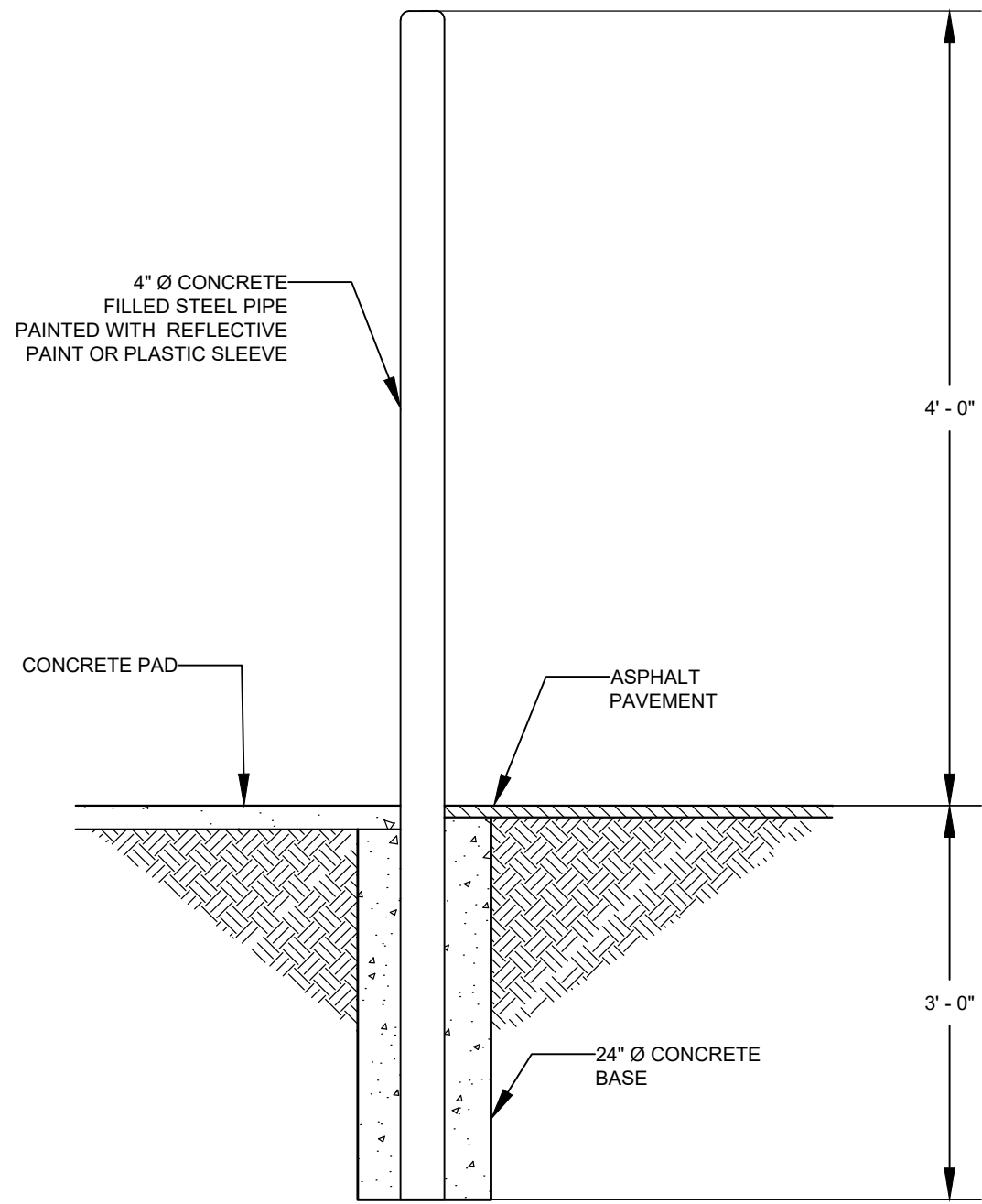
Scale	1" = 20'	Date	03/04/2020
Drafted By	RSR	Checked By	DLF
Project Mgr	RWB	Project Number	PDRE0001
Sheet Number			



ENGINEER: DAVID L. FROTHINGHAM III
MA P.E. #53592

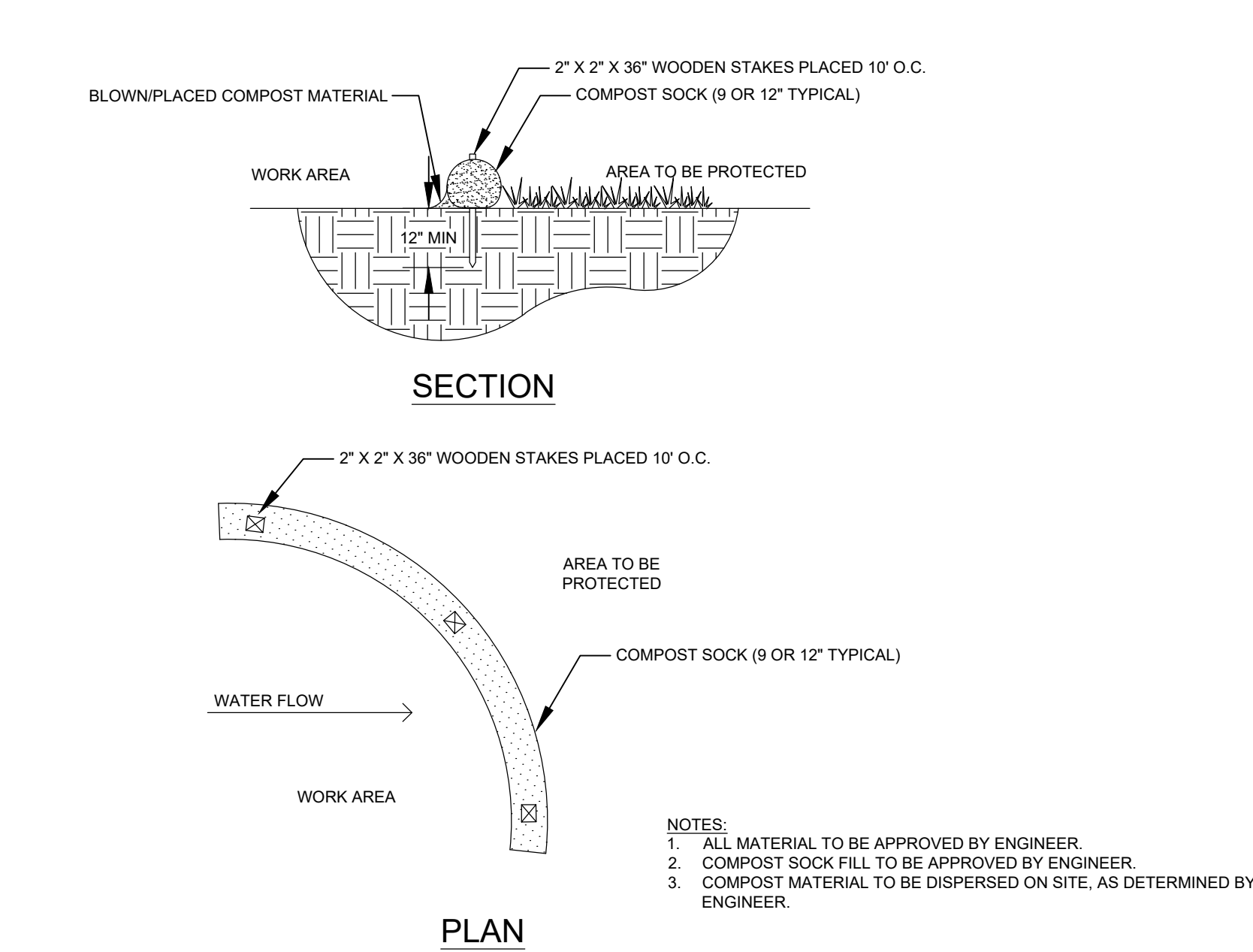
C1.1

1 of 2



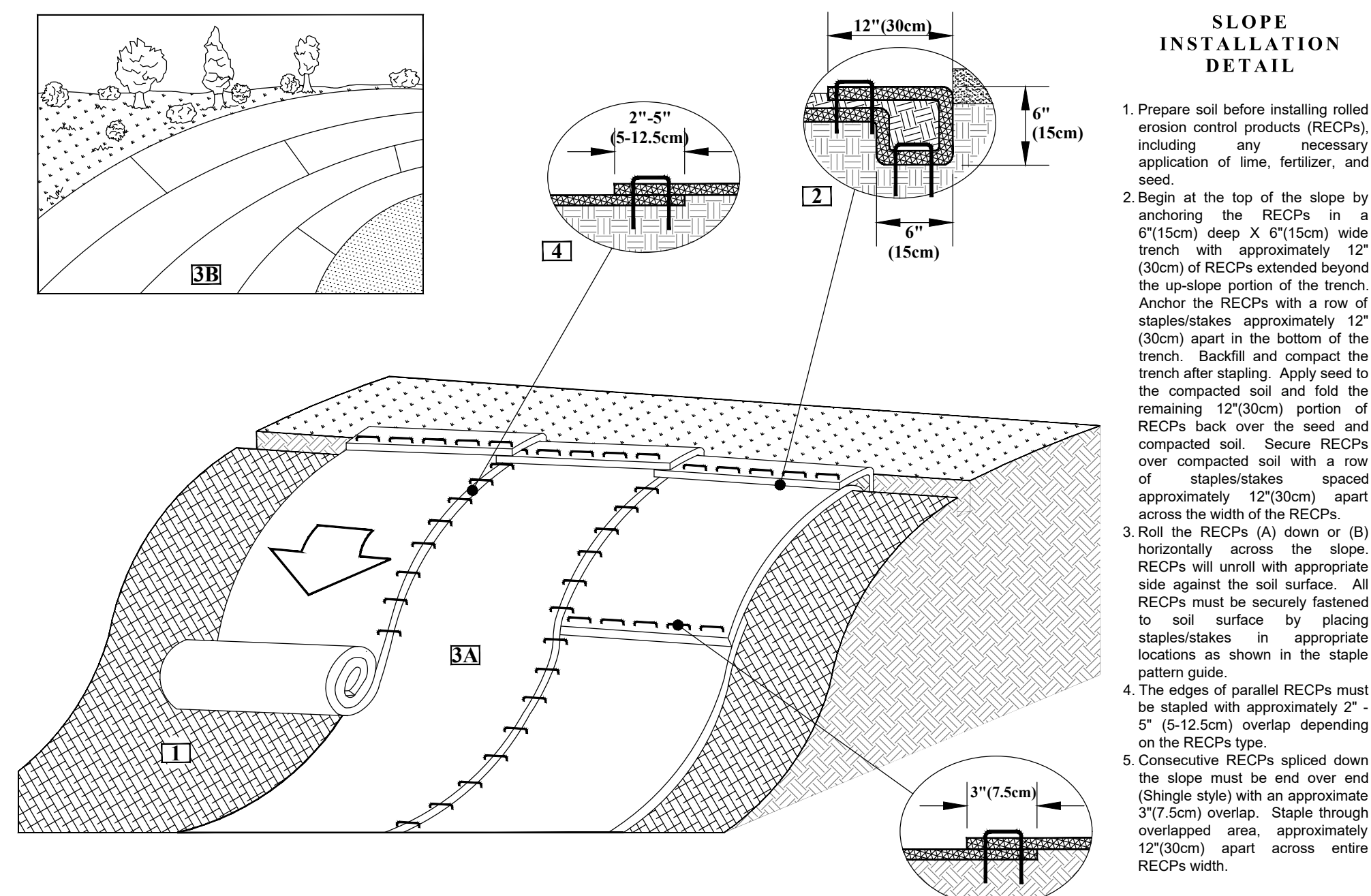
TRAFFIC BOLLARD

SOURCE: WILCOX & BARTON, INC.
NOT TO SCALE



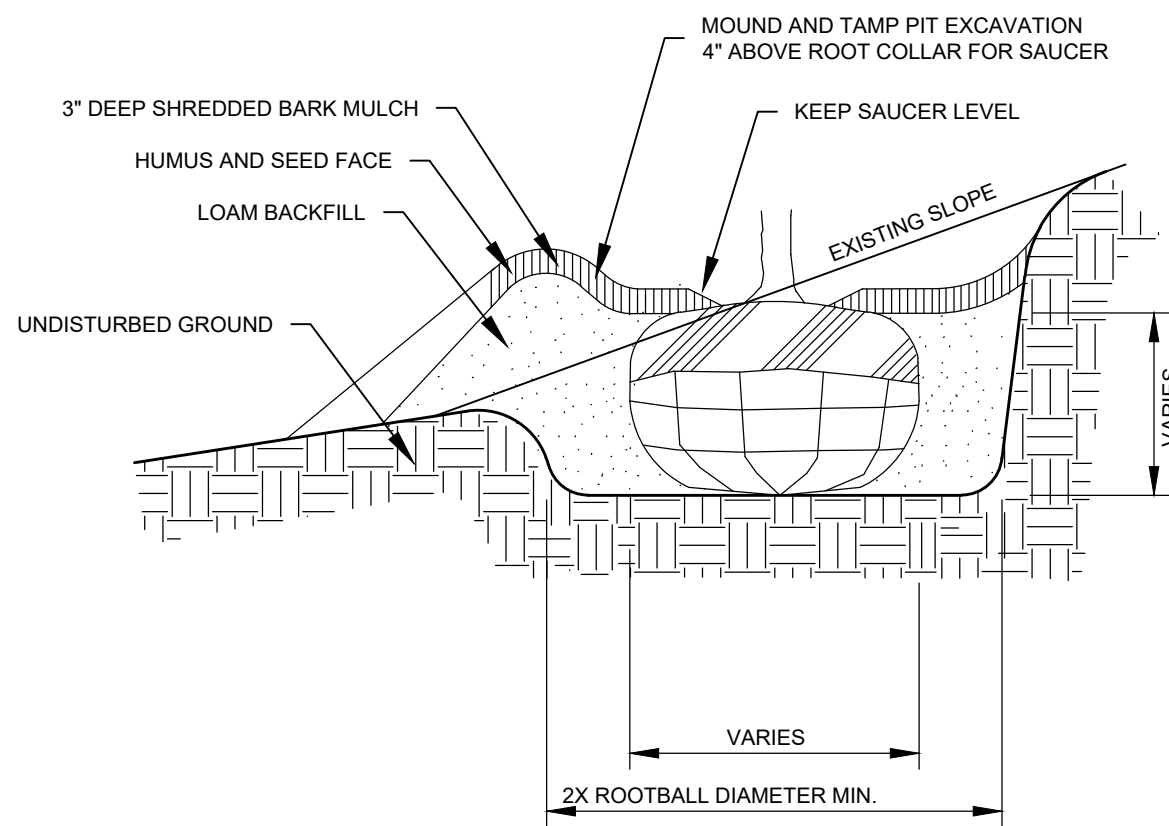
COMPOST SOCK OR FIBER ROLL SEDIMENT CONTROL

NOT TO SCALE



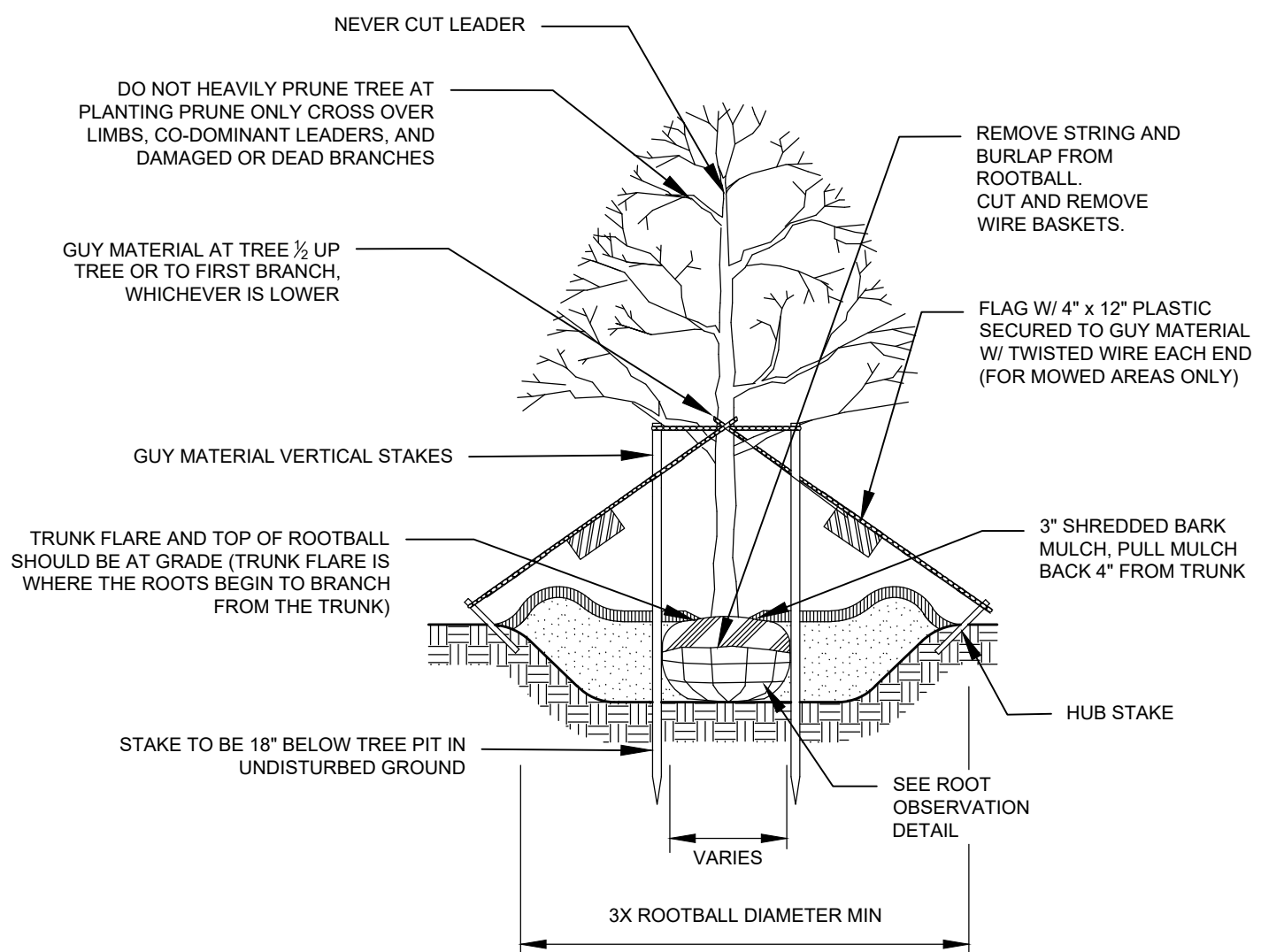
EROSION BLANKET SLOPE INSTALLTION

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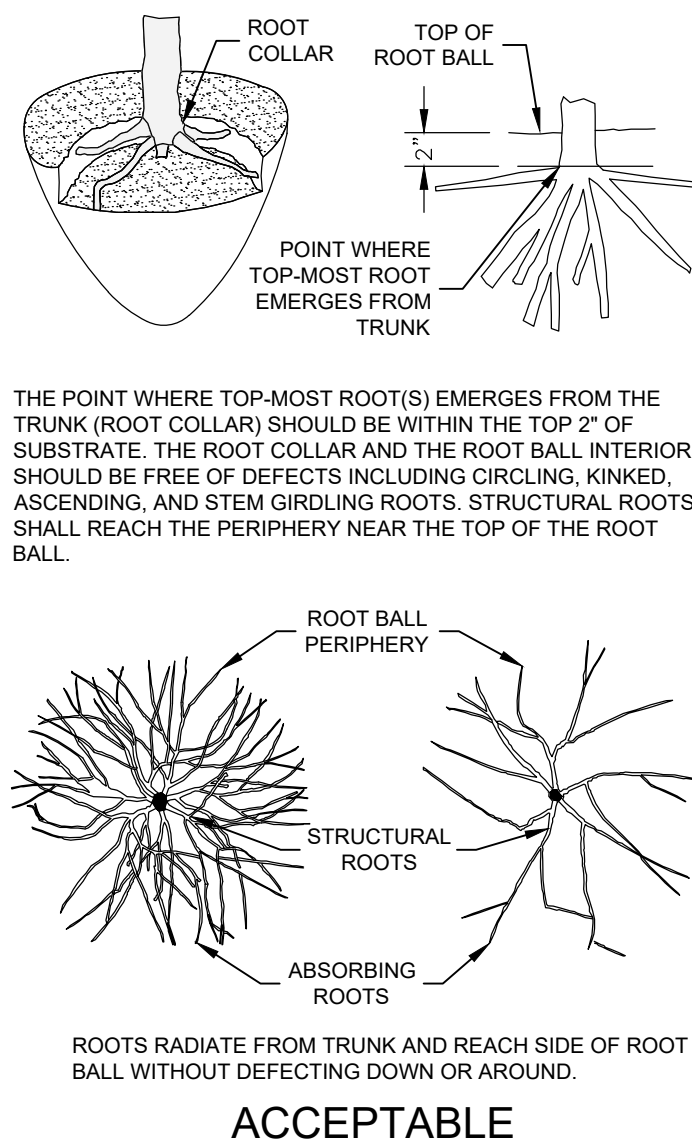
TYPICAL PLANTING PIT ON SLOPE 4:1 OR GREATER

NOT TO SCALE



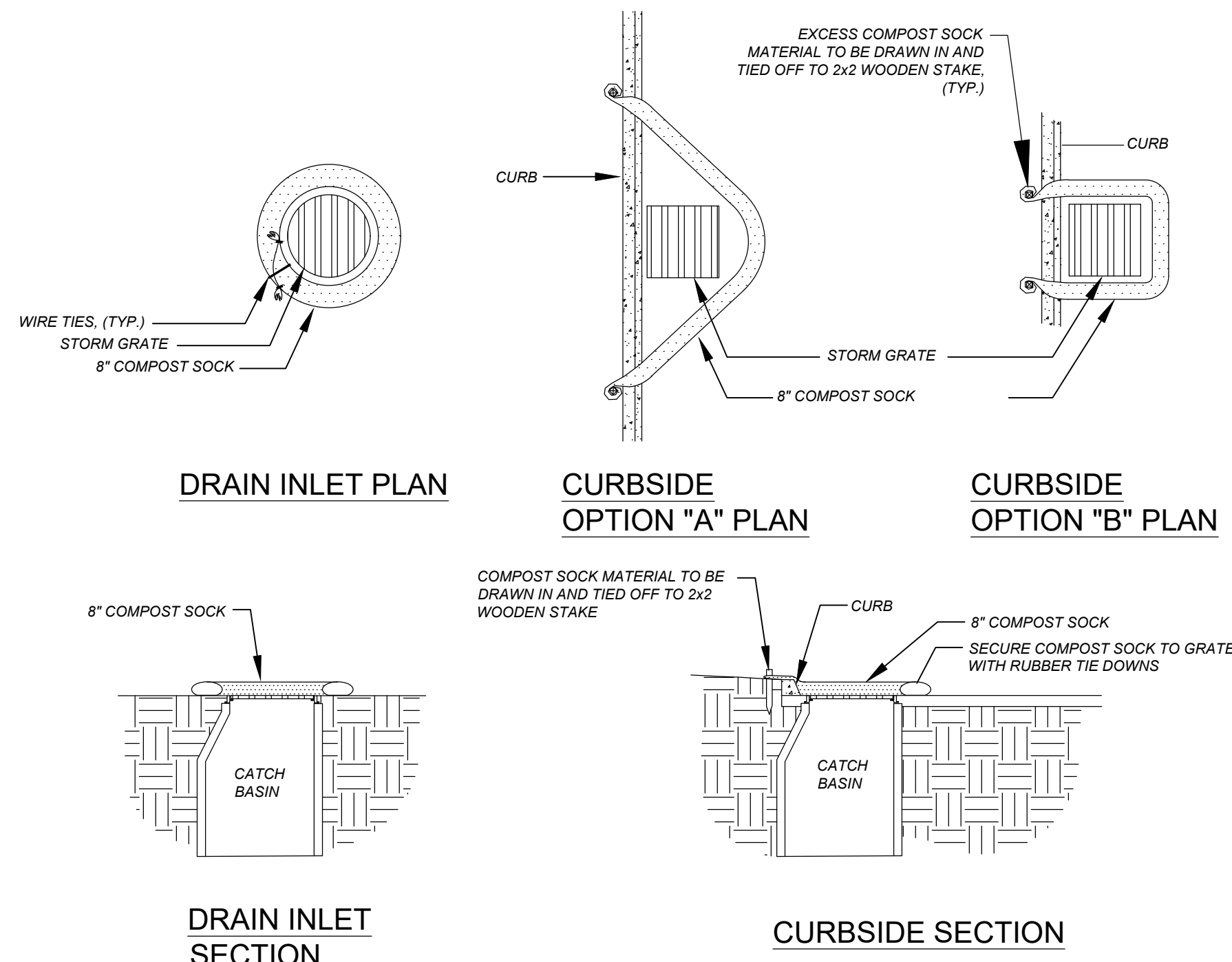
DECIDUOUS TREE PLANTING

NOT TO SCALE



ROOT OBSERVATION

NOT TO SCALE



SEDIMENT ROLL INLET PROTECTION

NOT TO SCALE

REVISION HISTORY

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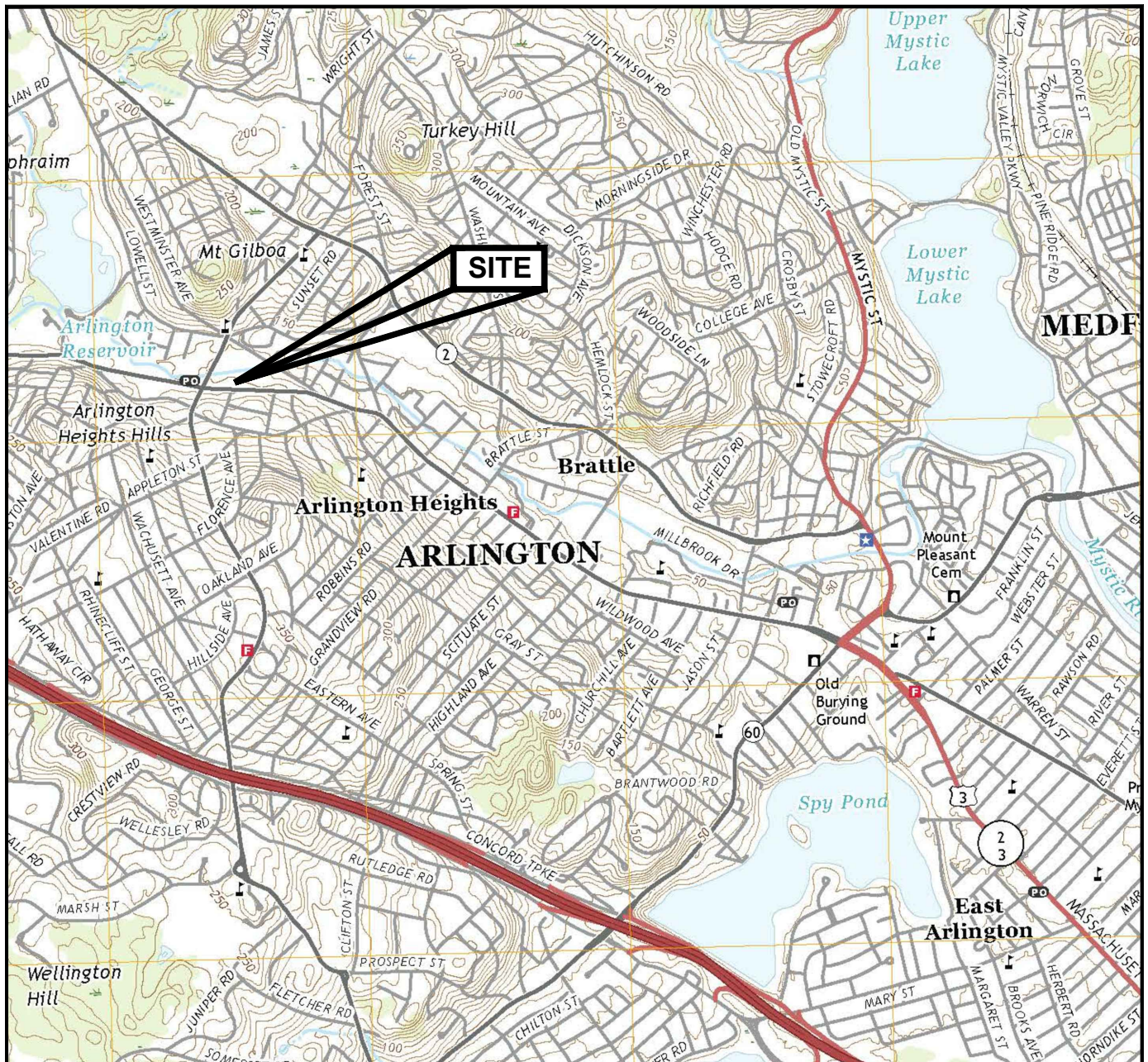
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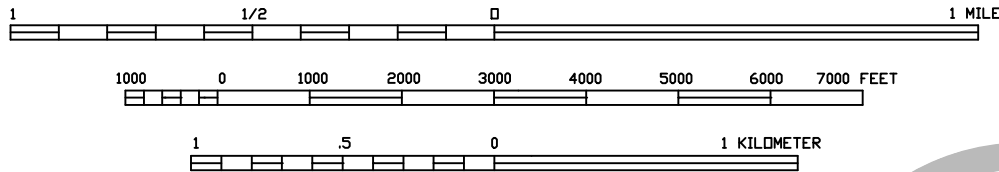
Construction & Erosion Control Details

Scale	N.T.S.	Date	03/04/2020
Drafted By	RSR	Checked By	DLF
Project Mgr	RWB	Project Number	PDRE0001

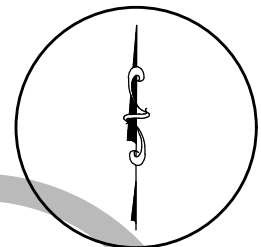
Sheet Number



SCALE: 1:24,000



CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988



DATE MAR. 4, 2020	SCALE As shown	FILE Site Location Map
APPROVED BY RWB	DRAWN BY RSR	REVISED
CLIENT P&D Realty	JOB NUMBER PDRE0001	
LOCATION D'agostino's Food Store 1297 Massachusetts Ave. Arlington, MA 02476	MAP SOURCE Lexington, MA USGS QUAD 2018	

Wilcox & Barton INC.
CIVIL · ENVIRONMENTAL · GEOTECHNICAL

SITE LOCATION MAP

Figure 1

SITE PHOTOS



Figure 1: Northern view of front of grease trap and trash compactor.



Figure 2: Southern view of eastern side of trash compactor.



Figure 3: Northern view of front of grease trap.



Figure 4: Northeastern view of rear of grease trap.



Figure 5: Western view of top of bank behind grease trap.



Figure 6: Eastern view of top of bank behind grease trap.



Figure 7: Northern view of bank behind grease trap.



Figure 8: Southern view of bank behind grease trap.

April 29, 2020

Emily Sullivan
Environmental Planner & Conservation Agent
Town of Arlington Conservation Commission
730 Massachusetts Avenue, Annex
Arlington, Massachusetts 02476

**RE: Response to Conservation Commission Comments
D'Agostino's Delicatessen
1297 Massachusetts Avenue, Arlington, MA**

Dear Ms. Sullivan,

Wilcox & Barton, Inc. is pleased to submit this letter addressing the comments provided in the Conservation Commission public hearing held on April 16, 2020. Enclosed please find electronic copies of the revised site plans, weekly inspection record form for the subject property, and an applicable portion of a Massachusetts Office of Coastal Zone Management (CZM) list of native shrubs and groundcovers. The project plans have been revised as follows:

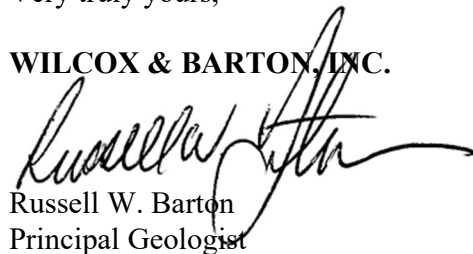
Commission Comments dated April 16, 2020

1. A weekly inspection record form for the subject property has been provided. See attached.
2. In addition to the erosion control matting and grass mix, Sweet Ferns (*Comptonia Peregrina*) are proposed to be planted throughout the proposed excavation area as specified on sheets C1.1 and C5.1. See the attached CZM list for details on Sweet Ferns.
3. Proposed perimeter erosion and sediment controls during construction shall be 12-inch compost socks. See sheets C1.1 and C5.1.

If you have any questions, or require additional information, please contact me at (603) 369-4190 x502.

Very truly yours,

WILCOX & BARTON, INC.



Russell W. Barton
Principal Geologist

Attachments: Revised Site Plan Sheets
- C1.1 Site Plan
- C5.1 Construction & Erosion Control Details
Weekly Inspection Record Form
CZM Native Shrubs and Groundcovers List

WEEKLY INSPECTION RECORD
D'Agostino's Food Store - Used Vegetable Oil Storage Container
1297 Massachusetts Avenue
Arlington, Massachusetts 02476

Current Inspection Date _____
 Previous Inspection Date _____
 Note: NA = not applicable

Inspector: _____
 Previous Action Issues Addressed: YES _____ NO _____

Include any required action items in comments.

Storage Container Name
Storage Area Containment <div style="margin-left: 40px;">Container free of rust, weeps, wet spots, or excessive dents</div> <div style="margin-left: 80px;">Area around container free from debris</div> <div style="margin-left: 40px;">Container free from threats of snow or ice</div> <div style="margin-left: 80px;">Container properly position</div> <div style="margin-left: 40px;">Container openings properly sealed</div> <div style="margin-left: 80px;">Is container accessible</div> <div style="margin-left: 40px;">Oil staining below lid or on tank exterior</div> <div style="margin-left: 80px;">Percentage full upon inspection</div>

Grease Container		
YES	NO	NA
_____ %		

*Container to be emptied when 90% full.

GENERAL
<div style="text-align: right; margin-right: 50px;">Container due to be pumped out</div> <div style="text-align: right; margin-right: 50px;">Container lid locked</div> <div style="margin-top: 20px;">Other: _____</div>

YES	NO	NA

Inspector's Signature

Date

Comments: _____

Page _____

Scheduled container replacement date is 2030.

Coastal Landscaping in Massachusetts

Plant Highlights and Images: Shrubs and Groundcovers

This PDF document provides graphics and additional information to supplement the Massachusetts Office of Coastal Zone Management (CZM) [Coastal Landscaping Website](#).

The following list provides descriptions and photographs of some of the most common and useful shrubs and groundcovers appropriate for coastal landscaping projects in Massachusetts. Unless otherwise noted, the listed plants are *native* to Massachusetts. For more coastal plants, see [Plant Highlights and Images](#) for PDF fact sheets on Grasses/Perennials and Trees.

Shrubs and Groundcovers

Arrowwood Viburnum (*Viburnum dentatum*)



Photo: University of Connecticut Plant Database

Arrowwood viburnum is a dense, multi-stemmed shrub that typically grows 5 to 9 feet tall and wide. The branches are upright and spreading and arch at the tips. The leaves are either a shiny or flat dark green and turn yellow or red to red-purple in the late fall. The showy flowers are small, white, flattened clusters, which bloom late May to early June. The fruit, which can be of an intense blue color, is ornamental and a food source for birds. Arrowwood is very easy to grow, being well adapted to full sun or partial shade and to dry or fairly wet soils. Arrowwood is useful for its hardiness, as a border or screen, for naturalized plantings, to attract birds, and for difficult sites. This shrub is free from serious problems, with the only main maintenance requirement being an occasional rejuvenation pruning.

Beach Heather (*Hudsonia tomentosa*)



Photo: Richard A. Howard Image Collection, courtesy of Smithsonian Institution

Beach heather is a low-growing perennial shrub that thrives in nutritionally poor sand, therefore making it a dominant species in the dune ecosystem. Beach heather is beneficial for other plants because it enriches the soil with nitrogen. Beach heather has scaly leaves covered with fine, hair-like structures that protect the plant from moisture loss due to the wind and the sun's heat. Off the tips of the branches grow clusters of bright yellow flowers. Beach heather functions to stabilize dunes with its carpet-like surface area that catches and holds the sand in place and its network of roots that binds the sediments.

Shrubs and Groundcovers

Red Chokeberry (*Aronia arbutifolia*)



Photo: University of Connecticut Plant Database

Red chokeberry is native throughout most of the eastern United States and is found in various habitats from dry hillsides to wetland areas. This deciduous shrub grows from 6 to 10 feet tall and 3 to 5 feet wide. It is a suckering, spreading, colonizing shrub with numerous, slender stems. Red chokeberry is tolerant of partial shade and of both dry and wet sites. It can be transplanted easily and is valued for its summer flowers, persistent fruit, and colorful fall foliage. It is useful for naturalistic plantings, bank and dune stabilization, colonization and mass plantings, or borders in a garden.

Shrubby Cinquefoil (*Potentilla fruticosa*)



Photo: CZM

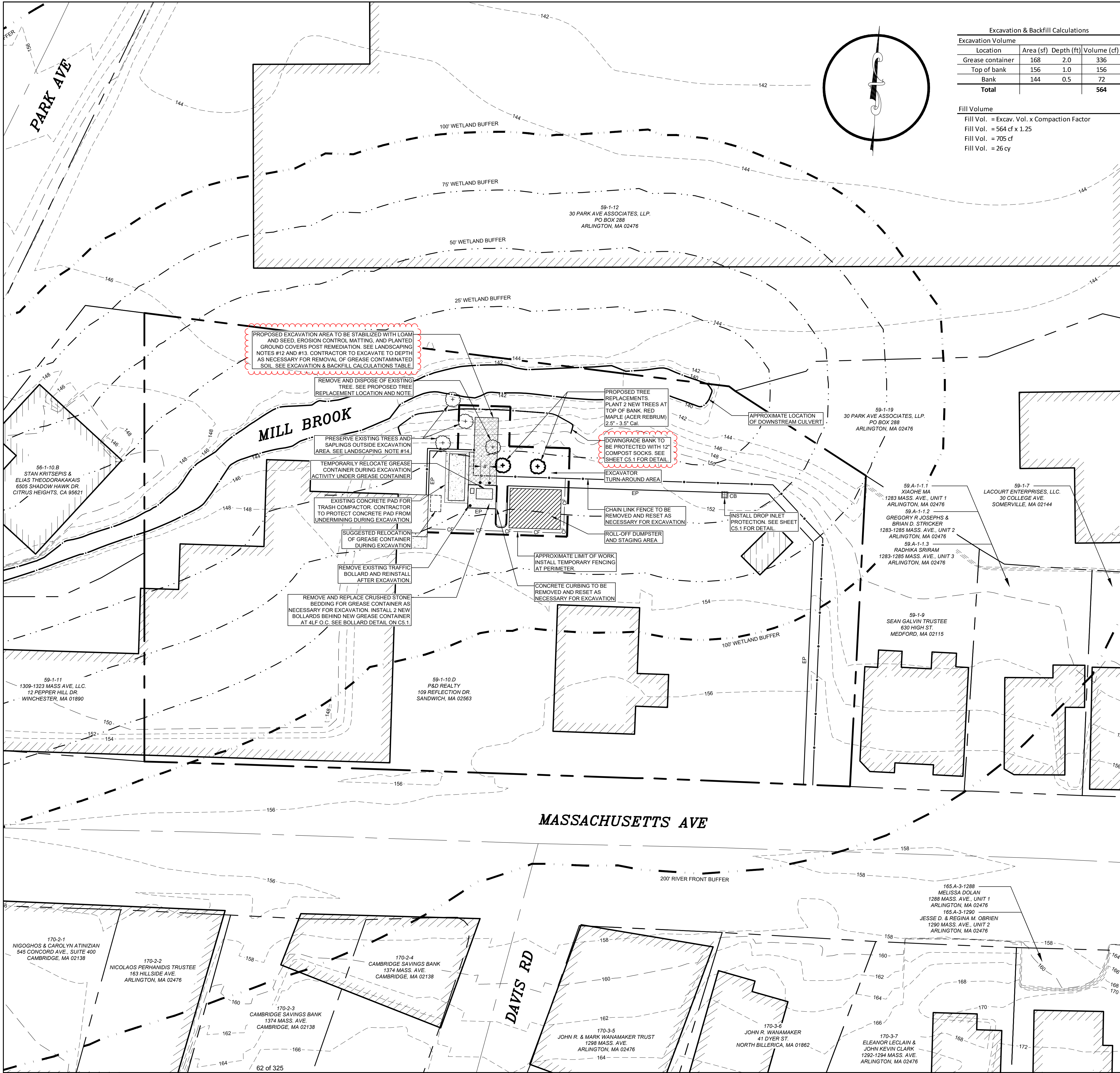
Also known as bush cinquefoil, this deciduous shrub typically grows 2 to 4 feet high and has a mound-shaped form and compound pinnate leaves. The five-petaled, bright-yellow flowers have a long blooming period, often appearing in the spring and continuing through early fall. Though shrubby cinquefoil does best in fertile, medium-moisture, well-drained soils in full sun, established plants grow well in a wide range of conditions, are fairly resistant to drought and saline soils, and are tolerant of some shade. Shrubby cinquefoil is also very tolerant of cold. The dense growth of this shrub provides cover for wildlife, the seed capsules provide fall and winter food for birds, and the flowers provide an excellent source of nectar for bees and butterflies. The variety 'Pink Beauty' is shown in the photograph.

Sweet Fern (*Comptonia peregrina*)



Photo: CZM

Sweet fern is a low-growing, deciduous native shrub that is 2 to 4 feet in height, with sweet-scented, fern-like leaves that are particularly aromatic when crushed. Sweet fern is a loosely branched, spreading, and colonizing plant. The flowers are small, inconspicuous catkins that bloom from April to May. Sweet fern is extremely cold hardy and prefers acidic, sandy, or peaty soils with low fertility, but does not tolerate shading. Sweet fern produces many underground stems or rhizomes, making it an effective groundcover for erosion control on steep, sandy banks and for species diversity in sterile, sandy soils.



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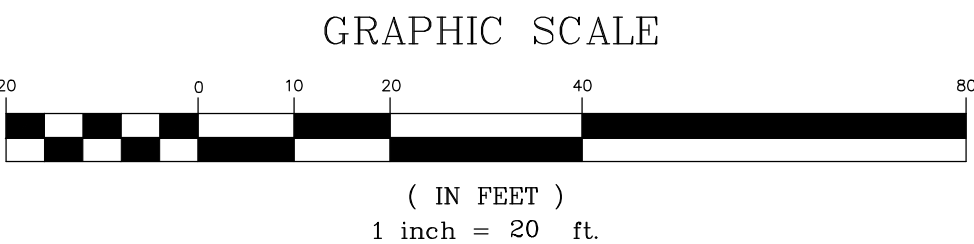
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- ALL DISTURBED AREAS, UNLESS OTHERWISE NOTED, TO BE LOAM, SEEDDED, AND MULCHED.
- CONTRACTOR TO USE NORTH AMERICAN GREEN BIONET SC150BN MATTING FOR ALL EROSION CONTROL MATTING. 70% STRAW / 30% COCONUT FIBER MATRIX.
- CONTRACTOR TO USE SWEET FERNS (COMPTONIA PEREGRINA) FOR ALL GROUND COVER PLANTINGS. SWEET FERNS SHALL BE PLANTED WITHIN THE EXCAVATION AREA NORTH OF THE EXISTING CHAIN LINK FENCE AND SPACED AT 2 FT TO 3 FT. SEE SHEET C5.1 FOR INSTALLATION DETAILS.
- CONTRACTOR SHALL PRESERVE AND PROTECT EXISTING TREE ROOTS. IF ADDITIONAL TREES NEED TO BE IMPACTED FOR REMEDIATION ACTIVITIES CONTACT ENGINEER IMMEDIATELY.

EROSION CONTROL SEED		
SEED	BY % MASS	% GERMINATION (MIN)
WINTER RYE 80 (MIN)	80 (MIN)	85
RED FESCUE (CREEPING)	4 (MIN)	80
PERENNIAL GRASS	3 (MIN)	90
RED CLOVER	3 (MIN)	90
OTHER CROP GRASS	0.5 (MAX)	
NOXIOUS WEED SEED	0.5 (MAX)	
INERT MATTER	1.0 (MAX)	

PERMANENT SEED MIX		
SEED	BY % MASS	% GERMINATION (MIN)
RED FESCUE (CREEPING)	50	85
KENTUCKY BLUE	25	85
PERENNIAL RYE GRASS	10	90
RED TOP	10	85
LANDINO CLOVER	5	85



Wilcox & Barton INC.
CIVIL • ENVIRONMENTAL • GEOTECHNICAL

2 CAPITAL PLAZA, SUITE 305
CONCORD, NH 03301
603-369-4190
www.wilcoxandbarton.com

REVISION HISTORY
1. RESPONSE TO CONSERVATION COMMISSION COMMENTS
(04/24/2020)

Permitting

ALL DOCUMENTS PREPARED BY WILCOX & BARTON, INC. ARE INSTRUMENTS OF SERVICE IN RESPECT OF THE PROJECT. THEY ARE NOT INTENDED OR REPRESENTED TO BE SUITABLE FOR REUSE BY OWNER OR OTHERS. ANY REUSE WITHOUT WRITTEN VERIFICATION OR ADAPTATION BY WILCOX & BARTON, INC. FOR THE SPECIFIC PURPOSE INTENDED WILL BE AT OWNER'S SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO WILCOX & BARTON, INC. OWNER SHALL INDEMNIFY AND HOLD HARMLESS WILCOX & BARTON, INC. FROM ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES ARISING OUT OF OR RESULTING THEREFROM.

P&D REALTY 109 REFLECTION DR SANDWICH, MA

D'AGOSTINO'S DELICATESSEN 1297 MASS. AVE. ARLINGTON, MA

Map/Block/Lot: 59/1/10D

Drawing Title

Site Plan

Scale: 1" = 20'

Date: 03/04/2020

Drafted By: RSR Checked By: DLF Project Mgr: RWB Project Number: PDRE0001

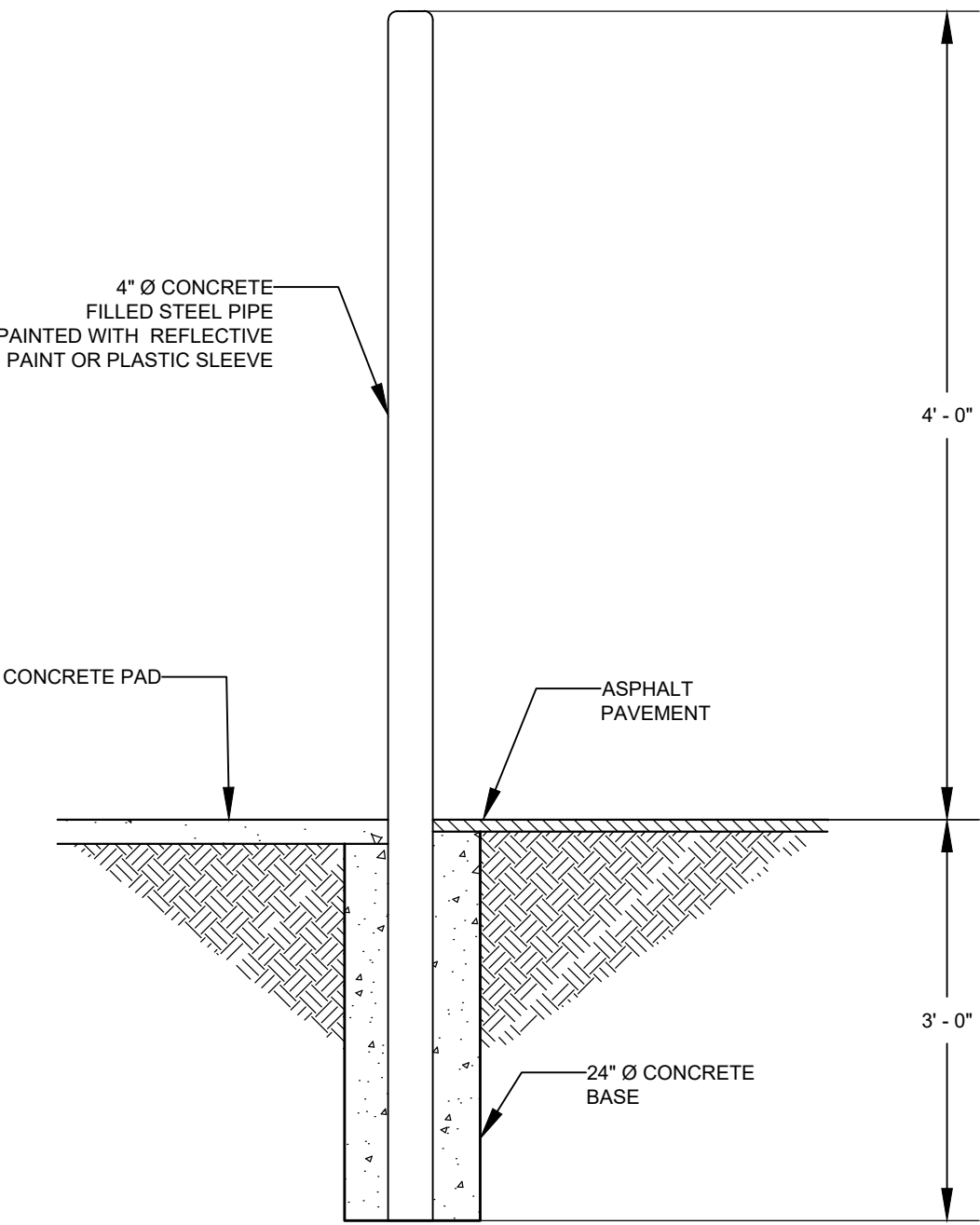
Sheet Number

SEAL OF THE COMMONWEALTH OF MASSACHUSETTS
DAVID L. FROTHINGHAM III
REGISTERED PROFESSIONAL ENGINEER

C1.1

ENGINEER: DAVID L. FROTHINGHAM III
MA P.E. #53592

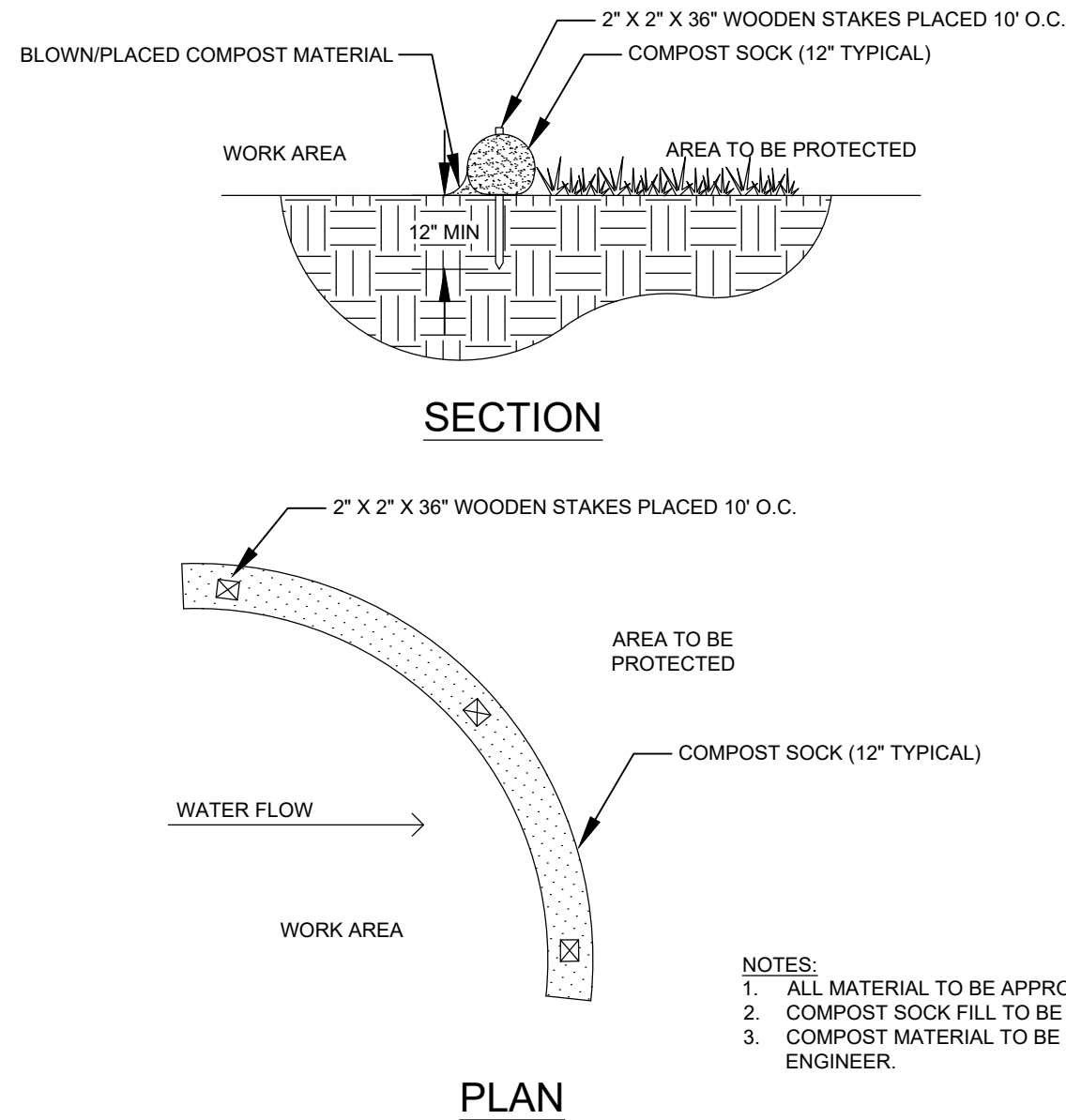
1 of 2



NOTES:
1. A PRECAST BOLLARD WHICH MEETS THE SPECIFIED DIMENSIONS MAY ALSO BE USED.

TRAFFIC BOLLARD

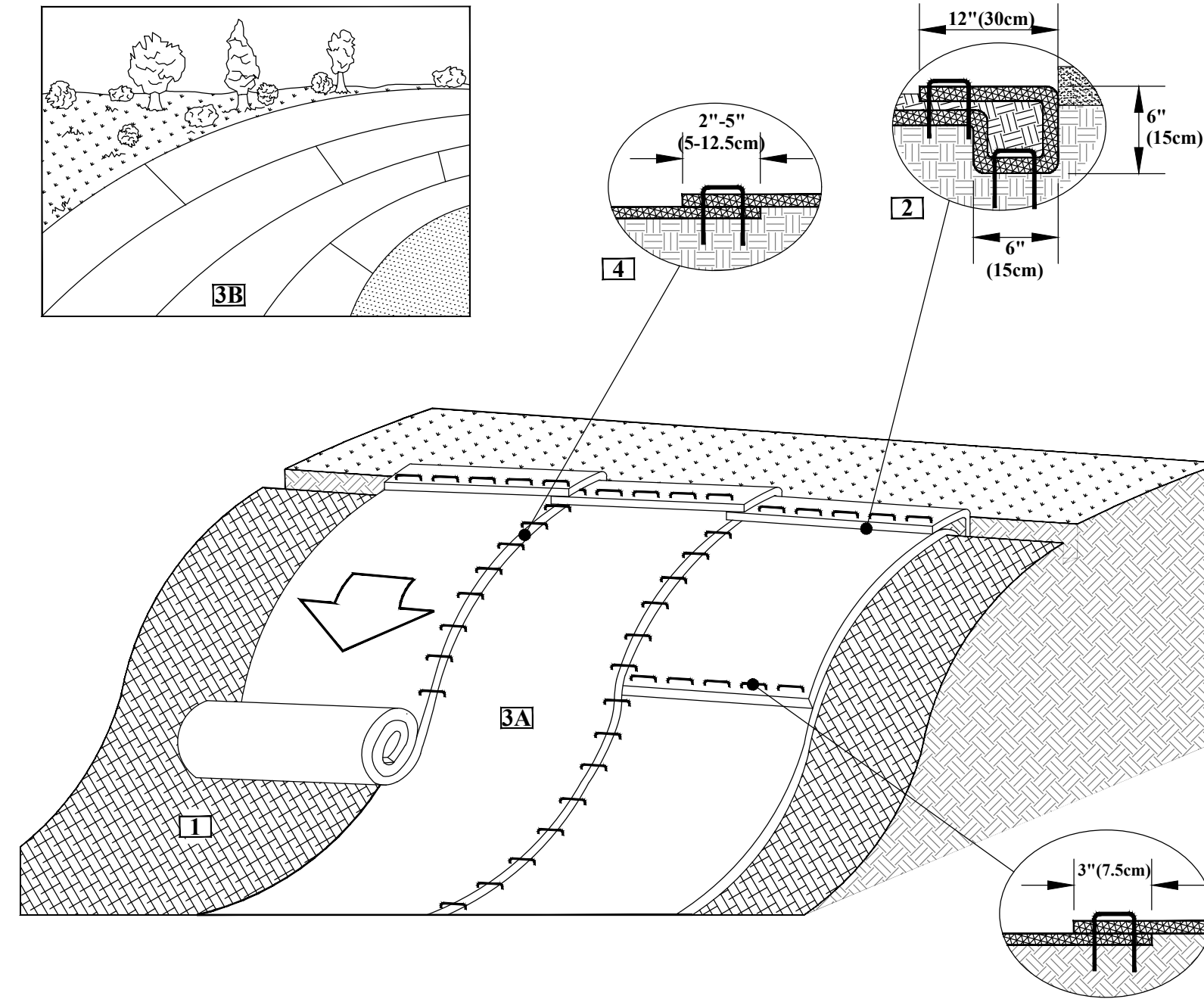
SOURCE: WILCOX & BARTON, INC.
NOT TO SCALE



NOTES:
1. ALL MATERIAL TO BE APPROVED BY ENGINEER.
2. COMPOST SOCK FILL TO BE APPROVED BY ENGINEER.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

COMPOST SOCK SEDIMENT CONTROL

NOT TO SCALE



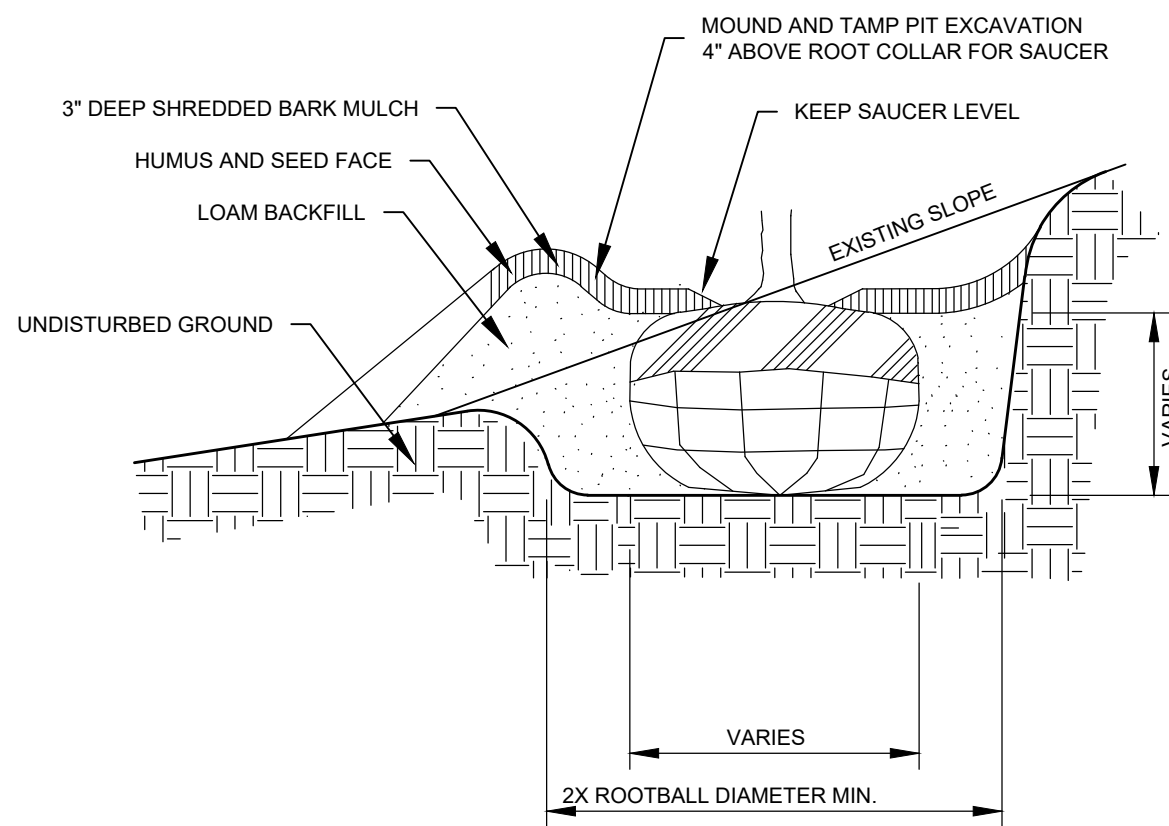
SLOPE INSTALLATION DETAIL

1. Prepare soil before installing rolled erosion control products (RECPs), including any necessary application of lime, fertilizer, and seed.
2. Begin at the top of the slope by anchoring the RECPs in a 6" (15cm) deep X 6" (15cm) wide trench with approximately 12" (30cm) of RECPs extended beyond the up-slope portion of the trench. Backfill and compact the trench after stapling. Apply seed to the compacted soil and fold the remaining 12" (30cm) portion of RECPs back over the seed and compacted soil. Secure RECPs over compacted soil with a row of staples/stakes spaced approximately 12" (30cm) apart across the width of the RECPs.
3. Roll the RECPs (A) down or (B) horizontally across the slope. RECPs will unroll with appropriate side against the soil surface. All RECPs must be securely fastened to soil surface by placing staples/stakes in appropriate locations as shown in the staple pattern guide.
4. The edges of parallel RECPs must be stapled with approximately 2" - 5" (5-12.5cm) overlap depending on the RECPs type.
5. Consecutive RECPs spliced down the slope must be end over end (Shingle style) with an approximate 3" (7.5cm) overlap. Staple through overlapped area, approximately 12" (30cm) apart across entire RECPs width.

*NOTE:
In loose soil conditions, the use of staple or stake lengths greater than 6" (15cm) may be necessary to properly secure the RECPs.

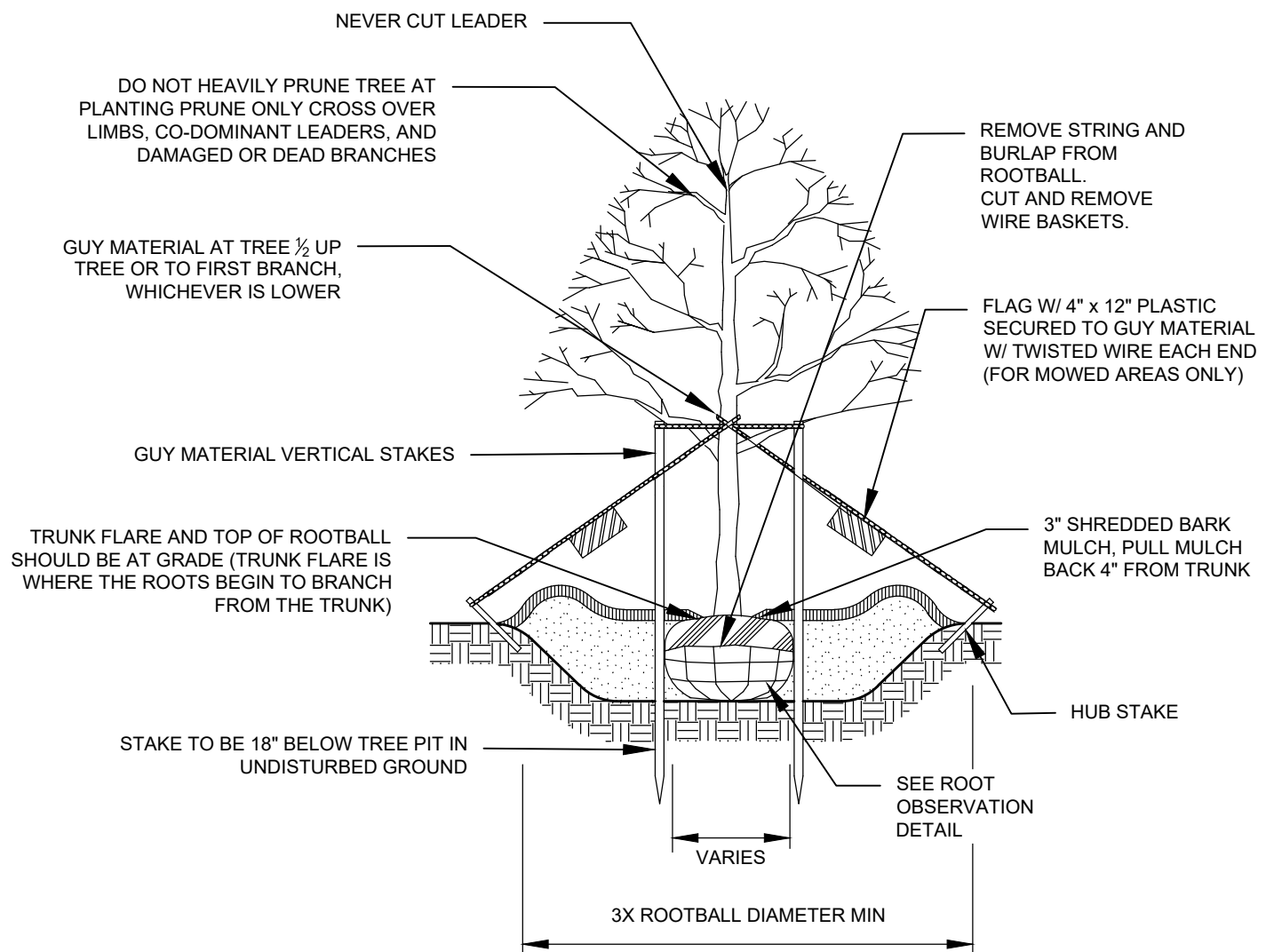
EROSION BLANKET SLOPE INSTALLTION

NOT TO SCALE



TYPICAL PLANTING PIT ON SLOPE 4:1 OR GREATER

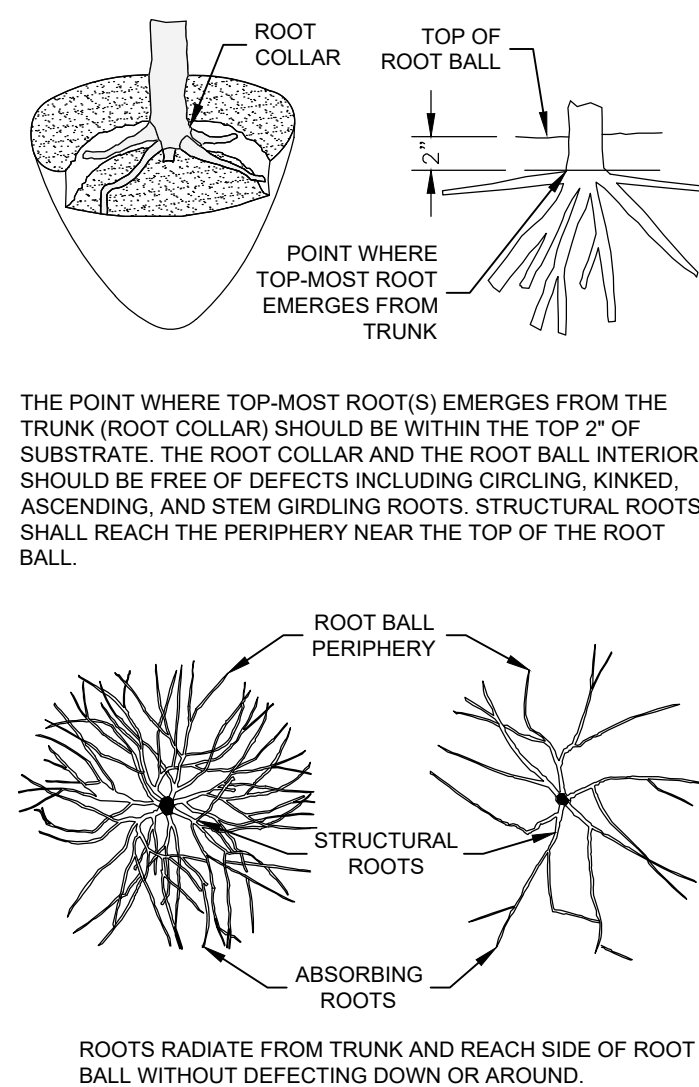
NOT TO SCALE



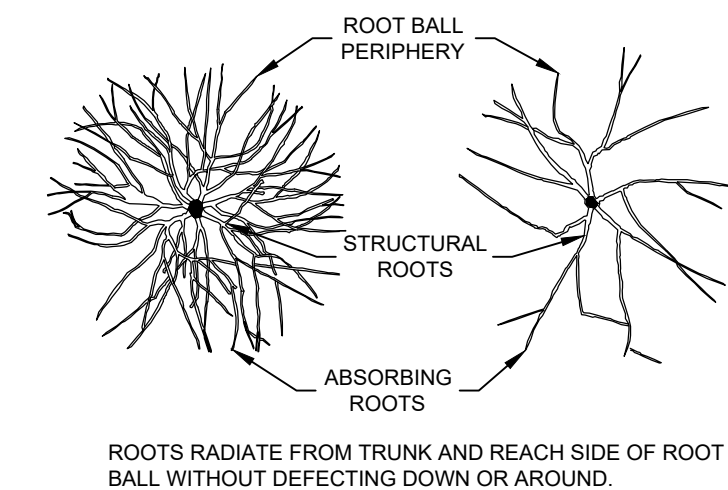
NOTES:
1. LOCAL FIELD CONDITIONS AS WELL AS PLANT CHARACTERISTICS WILL DETERMINE THE NECESSITY OF GUYING AND STAKING.
2. TYPICALLY ONLY TREES WITH A 3" OR GREATER CALIPER NEED TO BE STAKED.
3. TREE SHALL BE SET PLUMB, AFTER SETTLEMENT.
4. ALL NURSERY TAGS, TAPE, AND SIMILAR MATERIALS SHALL BE REMOVED.

DECIDUOUS TREE PLANTING

NOT TO SCALE



THE POINT WHERE TOP-MOST ROOT(S) EMERGES FROM THE TRUNK (ROOT COLLAR) SHOULD BE WITHIN THE TOP 2" OF SUBSTRATE. THE ROOT COLLAR AND THE ROOT BALL INTERIOR SHOULD BE FREE OF DEFECTS INCLUDING CIRCLING, KINKED, ASCENDING, AND STEM GIRDLING ROOTS. STRUCTURAL ROOTS SHALL REACH THE PERIPHERY NEAR THE TOP OF THE ROOT BALL.

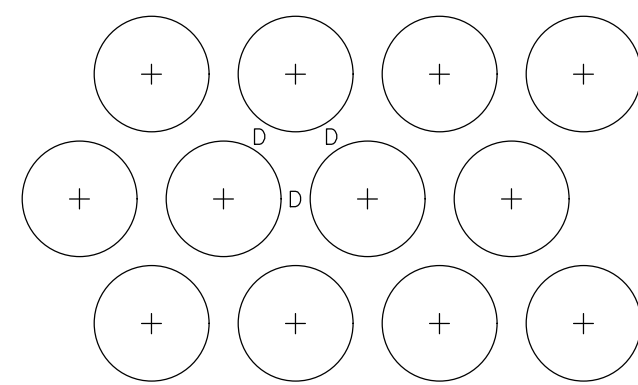


ACCEPTABLE

NOTES:
1. OBSERVATIONS OF ROOTS SHALL OCCUR PRIOR TO ACCEPTANCE. ROOTS AND SOIL MAY BE REMOVED DURING THE OBSERVATION PROCESS; SUBSTRATE/SOIL SHALL BE REPLACED AFTER THE OBSERVATIONS HAVE BEEN COMPLETED.

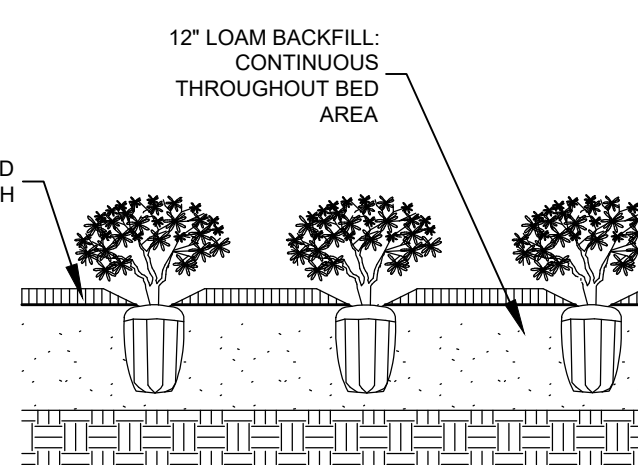
ROOT OBSERVATION

NOT TO SCALE



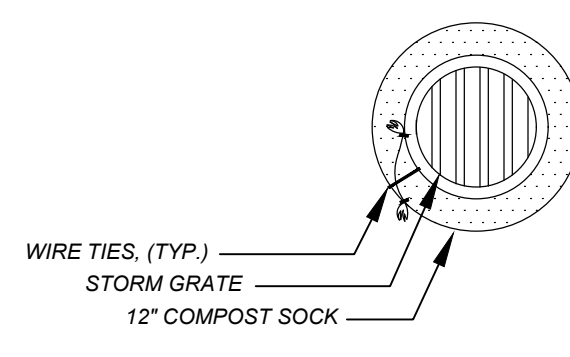
TYPICAL BED PLANT SPACING

D = DIMENSION OF PLANT SPACING (SHRUBS OR GROUND COVER AS INDICATED ON PLANS)

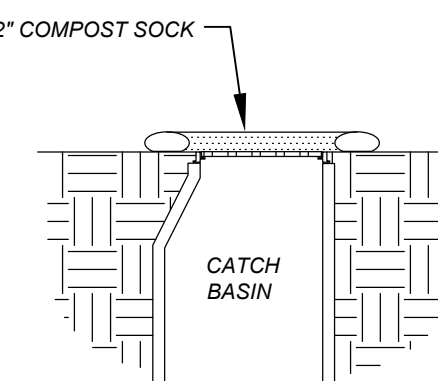


GROUND COVER BED PLANTING

NOT TO SCALE

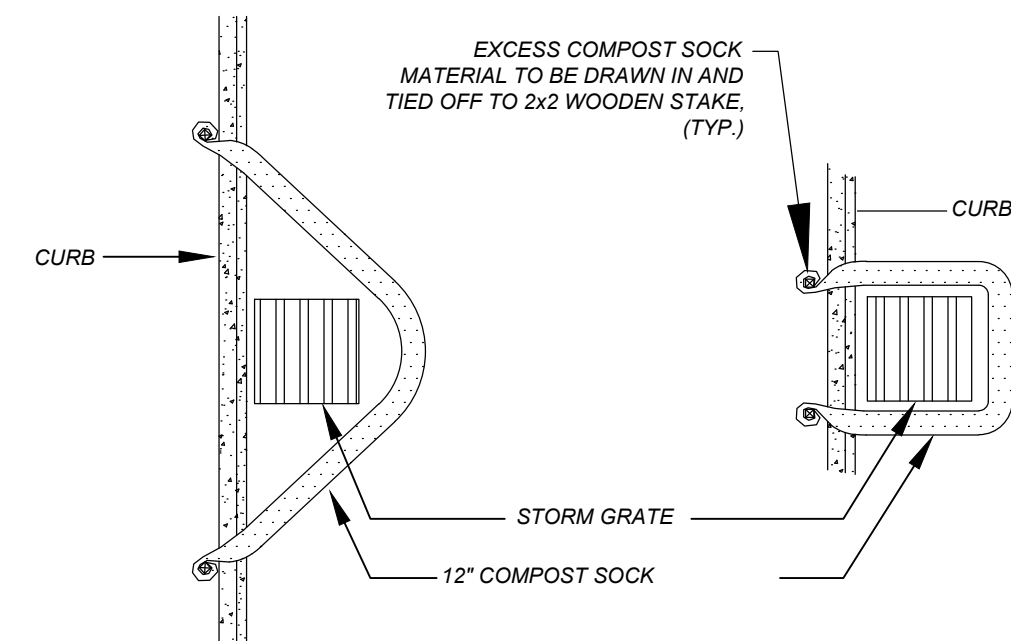


DRAIN INLET PLAN

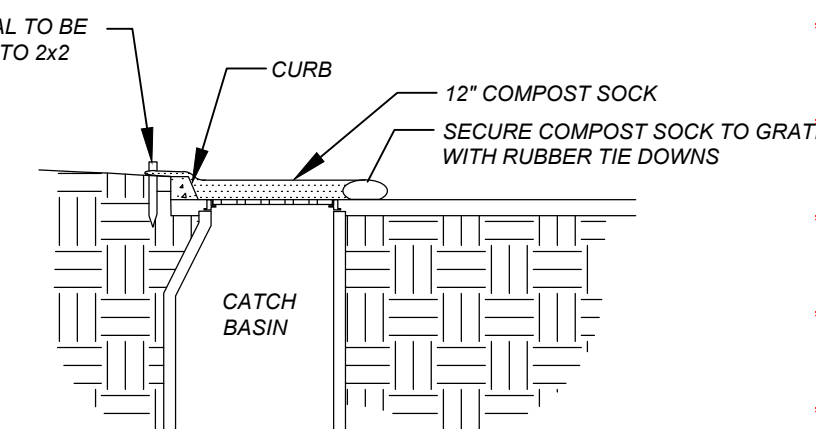


DRAIN INLET SECTION

NOTES:
1. ALL MATERIAL TO BE APPROVED BY ENGINEER.
2. FILTER MEDIA SHALL BE A COURSE COMPOSTED MATERIAL APPROVED BY ENGINEER.
3. FILTER MEDIA TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.



CURBSIDE OPTION "A" PLAN



CURBSIDE OPTION "B" PLAN

CURBSIDE SECTION

COMPOST SOCK INLET PROTECTION

NOT TO SCALE

2 CAPITAL PLAZA, SUITE 305
CONCORD, NH 03301
603-369-4190
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REVISION HISTORY
1. RESPONSE TO CONSERVATION COMMISSION COMMENTS
(04/24/2020)

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Owner

P&D REALTY

109 REFLECTION DR
SANDWICH, MA

Site

D'AGOSTINO'S DELICATESSEN

1297 MASS. AVE.
ARLINGTON, MA

Map/Block/Lot: 59/1/10D

Drawing Title

Construction & Erosion Control Details

Scale	N.T.S.	Date	03/04/2020
Drafted By	RSR	Checked By	DLF
Project Mgr	RWB	Project Number	PDRE0001

Sheet Number



ENGINEER: DAVID L. FROTHINGHAM III
MA P.E. #53592

C5.1

2 of 2



Town of Arlington, Massachusetts

Notice of Intent: 105 Lafayette Street

Summary:

MassDEP File #091-0322

This Notice of Intent (NOI) has not yet been presented to the Conservation Commission, and this meeting is the first opportunity for public comment. It is strongly encouraged that members of the public submit written comment for this NOI to the Conservation Agent in advance of the hearing, by emailing Emily Sullivan at esullivan@town.arlington.ma.us. All materials submitted for this NOI can be found on the Commission's agenda and minutes page, under the agenda for the 05/07/2020 meeting.

Hearing Summary:

This project proposes to raze and construct a single family home within the 100-ft Wetlands Buffer, 200-ft Riverfront Area, and floodplain.

ATTACHMENTS:

	Type	File Name	Description
▢	Notice of Intent	105_Lafayette_NOI.pdf	105 Lafayette St NOI Packet
▢	Notice of Intent	105_Lafayette_Plans.pdf	105 Lafayette St Plans
▢	Notice of Intent	105_Lafayette_Engineering_Drainage_Calculations.pdf	105 Lafayette St Drainage Calculations

Notice of Intent Application and Wetland Resource Area Analysis

April 20, 2020

Subject Property

105 Lafayette Street

Parcel ID: 2-5-14

Arlington, Massachusetts

Applicant and Property Owner

Lori Philbin

105 Lafayette Street

Arlington, MA 02474

LEC Environmental Consultants, Inc.

380 Lowell Street

Suite 101

Wakefield, MA 01880

781-245-2500

www.lecenvironmental.com

April 20, 2020

Federal Express

Arlington Conservation Commission
Arlington Town Hall Annex
730 Massachusetts Avenue
Arlington, MA 02476

**Re: Notice of Intent Application and
Wetland Resource Area Analysis
105 Lafayette Street
Parcel ID: 2-5-14
Arlington, Massachusetts**

[LEC File #: Phil\11-166.02]

Dear Members of the Conservation Commission:

On behalf of the Applicant and Property Owner, Lori Philbin, LEC Environmental Consultants, Inc., (LEC) is filing the enclosed Notice of Intent (NOI) Application and *Wetland Resource Area Analysis* with the Arlington Conservation Commission to raze and rebuild an existing single-family dwelling and associated site appurtenances at 105 Lafayette Street in Arlington, Massachusetts. Portions of the proposed activities are located within the 100-foot Buffer Zone to Bordering Vegetated Wetlands (BVW) and the outer portion of the 200-foot Riverfront Area associated with Alewife Brook/Little River, and within Bordering Land Subject to Flooding (BLSF). The Applicant proposes to implement erosion controls, and provide compensatory flood storage and stormwater management to minimize the potential for impacts to the resource areas and improve existing site conditions.

LEC was retained to identify Wetland Resource Areas protectable under the *Massachusetts Wetlands Protection Act* (M.G.L. c. 131, s. 40, the *Act*), its implementing Regulations (310 CMR 10.00, the *Act Regulations*), the *Town of Arlington Wetlands Protection Bylaw* (Article 8, the *Bylaw*) and its implementing *Wetlands Protection Regulations* (March 1, 2018, the *Bylaw Regulations*), and to prepare this NOI Application. Gala Simon Associates, Inc., has prepared the enclosed *Grading/Drainage Plan - 105 Lafayette Street, Arlington, Massachusetts*, and *Details Plan*, both dated May 27, 2012 and revised through March 26, 2020 showing the existing and proposed site conditions and construction details (Appendix B). Details of the stormwater design, supporting calculations, and an *Operation & Maintenance Plan* can be found in the *Engineering Drainage Calculations for 105 Lafayette Street, Arlington, Massachusetts*, also prepared by Gala Simon Associates, Inc., and dated March 26, 2020 (*Drainage Calculations*, attached).

LEC Environmental Consultants, Inc.

www.lecenvironmental.com

12 Resnik Road
Suite 1
Plymouth, MA 02360
508-746-9491
508-746-9492 (Fax)

PLYMOUTH, MA

380 Lowell Street
Suite 101
Wakefield, MA 01880
781-245-2500
781-245-6677 (Fax)

WAKEFIELD, MA

100 Grove Street
Suite 302
Worcester, MA 01605
508-753-3077
508-753-3177 (Fax)

WORCESTER, MA

P. O. Box 590
Rindge, NH 03461
603-899-6620
603-899-6726 (Fax)

RINDGE, NH



Enclosed please find two checks made payable to the Town of Arlington in the amounts of Three Hundred, Eighty-Seven Dollars and Fifty Cents (\$387.50) and Six Hundred Dollars (\$600.00) for the purpose of filing this Application under State and Local guidelines, respectively. The check payable to the Commonwealth of Massachusetts in the amount of Three Hundred, Sixty-Two Dollars and Fifty Cents (\$362.50) has been mailed to the DEP Lockbox with a copy of the NOI Wetland Fee Transmittal Form.

Thank you for your consideration of this Application. We look forward to meeting with you at the May 7, 2020 Public Hearing. Should you have any questions, please do not hesitate to contact me in our Wakefield office at 781-245-2500 or at rkirby@lecenvironmental.com.

Sincerely,

LEC Environmental Consultants, Inc.

A handwritten signature in black ink, appearing to read "Richard A. Kirby", with a long horizontal flourish extending to the right.

Richard A. Kirby
Senior Wetland Scientist

cc: DEP, Northeast Region
Loir Philbin
Gala Simon Associates, Inc.

rak: projects\11-166.02\NOIReport.doc

i.	WPA Form 3 – Notice of Intent
ii.	WPA Appendix B – Wetland Fee Transmittal Form
iii.	Local Filing Fee Form
iv.	Legal Charge Authorization Form
v.	Affidavit of Service
vi.	Letter to Abutters
vii.	Abutter Notification Form
viii.	Certified List of Abutters

Wetland Resource Area Analysis and Report

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Literature Cited

Appendix A

Locus Maps

Figure 1: USGS Topographic Quadrangle

Figure 2: FEMA Flood Insurance Rate Map

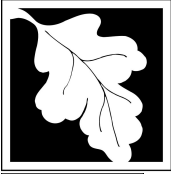
Figure 3: MassGIS Orthophoto & NHESP Estimated Habitat Map

Appendix B

Grading/Drainage Plan - 105 Lafayette Street, Arlington, Massachusetts, dated May 27, 2012 and revised through March 26, 2020, prepared by Gala Simon Associates, Inc.

Attachment

Engineering Drainage Calculations for 105 Lafayette Street, Arlington, Massachusetts, dated March 26, 2020, prepared by Gala Simon Associates, Inc.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40
Town of Arlington Wetlands Protection Bylaw (Article 8)

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Arlington

City/Town

Important:

When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Note:
Before completing this form consult your local Conservation Commission regarding any municipal bylaw or ordinance.

A. General Information

1. Project Location (**Note:** electronic filers will click on button to locate project site):

105 Lafayette Street

a. Street Address

Arlington

b. City/Town

02474

c. Zip Code

Latitude and Longitude:

42.399096 N

d. Latitude

-71.142184 W

e. Longitude

Parcel ID: 2-5-14

f. Assessors Map/Plat Number

g. Parcel /Lot Number

2. Applicant:

Lori

a. First Name

Philbin

b. Last Name

N/A

c. Organization

105 Lafayette Street

d. Street Address

Arlington

e. City/Town

MA

f. State

02474

g. Zip Code

781-646-4101

h. Phone Number

N/A

i. Fax Number

lori.philbin@verizon.net

j. Email Address

3. Property owner (required if different from applicant): ☐ Check if more than one owner

Same as Applicant

a. First Name

b. Last Name

c. Organization

d. Street Address

e. City/Town

f. State

g. Zip Code

h. Phone Number

i. Fax Number

j. Email address

4. Representative (if any):

Richard

a. First Name

Kirby

b. Last Name

LEC Environmental Consultants, Inc.

c. Company

380 Lowell Street, Suite 101

d. Street Address

Wakefield

e. City/Town

MA

f. State

01880

g. Zip Code

781-245-2500

h. Phone Number

781-245-6677

i. Fax Number

rkirby@lecenvironmental.com

j. Email address

5. Total WPA Fee Paid (from NOI Wetland Fee Transmittal Form):

\$750.00

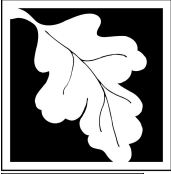
a. Total Fee Paid

\$362.50

b. State Fee Paid

\$387.50

c. City/Town Fee Paid



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40
Town of Arlington Wetlands Protection Bylaw (Article 8)

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Arlington

City/Town

A. General Information (continued)

6. General Project Description:

The Applicant proposes to raze and rebuild an existing single-family dwelling and associated site appurtenances at 105 Lafayette Street in Arlington, Massachusetts. Portions of the proposed activities are located within the 100-foot Buffer Zone to Bordering Vegetated Wetlands (BVW) and the outer portion of the 200-foot Riverfront Area associated with Alewife Brook, and within Bordering Land Subject to Flooding (BLSF). The Applicant proposes to implement erosion controls and stormwater management to minimize the potential for impacts to the resource areas and improve existing site conditions.

7a. Project Type Checklist: (Limited Project Types see Section A. 7b.)

- | | |
|---|---|
| 1. <input checked="" type="checkbox"/> Single Family Home | 2. <input type="checkbox"/> Residential Subdivision |
| 3. <input type="checkbox"/> Commercial/Industrial | 4. <input type="checkbox"/> Dock/Pier |
| 5. <input type="checkbox"/> Utilities | 6. <input type="checkbox"/> Coastal engineering Structure |
| 7. <input type="checkbox"/> Agriculture (e.g., cranberries, forestry) | 8. <input type="checkbox"/> Transportation |
| 9. <input type="checkbox"/> Other | |

7b. Is any portion of the proposed activity eligible to be treated as a limited project (including Ecological Restoration Limited Project) subject to 310 CMR 10.24 (coastal) or 310 CMR 10.53 (inland)?

1. ☐ Yes ☒ No If yes, describe which limited project applies to this project. (See 310 CMR 10.24 and 10.53 for a complete list and description of limited project types)

2. Limited Project Type

If the proposed activity is eligible to be treated as an Ecological Restoration Limited Project (310 CMR 10.24(8), 310 CMR 10.53(4)), complete and attach Appendix A: Ecological Restoration Limited Project Checklist and Signed Certification.

8. Property recorded at the Registry of Deeds for:

Southern Middlesex

a. County

01227

c. Book

b. Certificate # (if registered land)

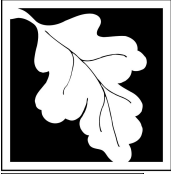
67

d. Page Number

B. Buffer Zone & Resource Area Impacts (temporary & permanent)

- ☐ Buffer Zone Only – Check if the project is located only in the Buffer Zone of a Bordering Vegetated Wetland, Inland Bank, or Coastal Resource Area.
- ☒ Inland Resource Areas (see 310 CMR 10.54-10.58; if not applicable, go to Section B.3, Coastal Resource Areas).

Check all that apply below. Attach narrative and any supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40
Town of Arlington Wetlands Protection Bylaw (Article 8)

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Arlington

City/Town

B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

For all projects affecting other Resource Areas, please attach a narrative explaining how the resource area was delineated.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. <input type="checkbox"/> Bank	1. linear feet	2. linear feet
b. <input type="checkbox"/> Bordering Vegetated Wetland	1. square feet	2. square feet
c. <input type="checkbox"/> Land Under Waterbodies and Waterways	1. square feet 3. cubic yards dredged	2. square feet

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
d. <input checked="" type="checkbox"/> Bordering Land Subject to Flooding	475± 1. square feet 538± 3. cubic feet of flood storage lost	952± 2. square feet 2,856± 4. cubic feet replaced
e. <input type="checkbox"/> Isolated Land Subject to Flooding	1. square feet 2. cubic feet of flood storage lost	3. cubic feet replaced
f. <input checked="" type="checkbox"/> Riverfront Area	Alewife Brook (inland) 1. Name of Waterway (if available) - specify coastal or inland	

2. Width of Riverfront Area (check one):

- ☐ 25 ft. - Designated Densely Developed Areas only
- ☐ 100 ft. - New agricultural projects only
- ☒ 200 ft. - All other projects

3. Total area of Riverfront Area on the site of the proposed project: _____ square feet

4. Proposed alteration of the Riverfront Area:

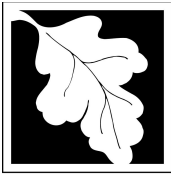
2,321±	0	816±
a. total square feet	b. square feet within 100 ft.	c. square feet between 100 ft. and 200 ft.

5. Has an alternatives analysis been done and is it attached to this NOI? ☒ Yes ☐ No

6. Was the lot where the activity is proposed created prior to August 1, 1996? ☒ Yes ☐ No

3. ☐ Coastal Resource Areas: (See 310 CMR 10.25-10.35)

Note: for coastal riverfront areas, please complete **Section B.2.f.** above.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40
Town of Arlington Wetlands Protection Bylaw (Article 8)

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Arlington

City/Town

B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

Check all that apply below. Attach narrative and supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

Online Users:
Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

<u>Resource Area</u>	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
a. <input type="checkbox"/> Designated Port Areas	Indicate size under Land Under the Ocean, below	
b. <input type="checkbox"/> Land Under the Ocean	1. square feet	
	2. cubic yards dredged	
c. <input type="checkbox"/> Barrier Beach	Indicate size under Coastal Beaches and/or Coastal Dunes below	
d. <input type="checkbox"/> Coastal Beaches	1. square feet	2. cubic yards beach nourishment
e. <input type="checkbox"/> Coastal Dunes	1. square feet	2. cubic yards dune nourishment
	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
f. <input type="checkbox"/> Coastal Banks	1. linear feet	
g. <input type="checkbox"/> Rocky Intertidal Shores	1. square feet	
h. <input type="checkbox"/> Salt Marshes	1. square feet	2. sq ft restoration, rehab., creation
i. <input type="checkbox"/> Land Under Salt Ponds	1. square feet	
	2. cubic yards dredged	
j. <input type="checkbox"/> Land Containing Shellfish	1. square feet	
k. <input type="checkbox"/> Fish Runs	Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above	
	1. cubic yards dredged	
l. <input type="checkbox"/> Land Subject to Coastal Storm Flowage	1. square feet	

4. ☐ Restoration/Enhancement

If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.2.b or B.3.h above, please enter the additional amount here.

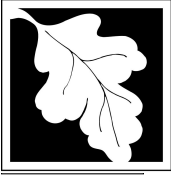
a. square feet of BVW

b. square feet of Salt Marsh

5. ☐ Project Involves Stream Crossings

a. number of new stream crossings

b. number of replacement stream crossings



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40
Town of Arlington Wetlands Protection Bylaw (Article 8)

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Arlington

City/Town

C. Other Applicable Standards and Requirements

- ☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section C and complete Appendix A: Ecological Restoration Limited Project Checklists – Required Actions (310 CMR 10.11).

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

1. Is any portion of the proposed project located in **Estimated Habitat of Rare Wildlife** as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage and Endangered Species Program (NHESP)? To view habitat maps, see the *Massachusetts Natural Heritage Atlas* or go to http://maps.massgis.state.ma.us/PRI_EST_HAB/viewer.htm.

a. ☐ Yes ☒ No

If yes, include proof of mailing or hand delivery of NOI to:

Natural Heritage and Endangered Species Program
Division of Fisheries and Wildlife
1 Rabbit Hill Road
Westborough, MA 01581

2017

b. Date of map

If yes, the project is also subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18). To qualify for a streamlined, 30-day, MESA/Wetlands Protection Act review, please complete Section C.1.c, and include requested materials with this Notice of Intent (NOI); *OR* complete Section C.2.f, if applicable. *If MESA supplemental information is not included with the NOI, by completing Section 1 of this form, the NHESP will require a separate MESA filing which may take up to 90 days to review (unless noted exceptions in Section 2 apply, see below).*

- c. Submit Supplemental Information for Endangered Species Review*

1. ☐ Percentage/acreage of property to be altered:

(a) within wetland Resource Area

percentage/acreage

(b) outside Resource Area

percentage/acreage

2. ☐ Assessor's Map or right-of-way plan of site

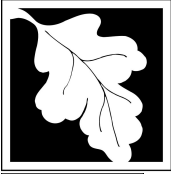
2. ☐ Project plans for entire project site, including wetland resource areas and areas outside of wetlands jurisdiction, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work **

(a) ☐ Project description (including description of impacts outside of wetland resource area & buffer zone)

(b) ☐ Photographs representative of the site

* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review (see <http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/regulatory-review/>). Priority Habitat includes habitat for state-listed plants and strictly upland species not protected by the Wetlands Protection Act.

** MESA projects may not be segmented (321 CMR 10.16). The applicant must disclose full development plans even if such plans are not required as part of the Notice of Intent process.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40
Town of Arlington Wetlands Protection Bylaw (Article 8)

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Arlington

City/Town

C. Other Applicable Standards and Requirements (cont'd)

- (c) ☐ MESA filing fee (fee information available at http://www.mass.gov/dfwele/dfw/nhesp/regulatory_review/ mesa/ mesa_fee_schedule.htm).
Make check payable to "Commonwealth of Massachusetts - NHESP" and **mail to NHESP** at above address

Projects altering 10 or more acres of land, also submit:

- (d) ☐ Vegetation cover type map of site
- (e) ☐ Project plans showing Priority & Estimated Habitat boundaries
- (f) OR Check One of the Following

1. ☐ Project is exempt from MESA review.
Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, http://www.mass.gov/dfwele/dfw/nhesp/regulatory_review/ mesa/ mesa_exemptions.htm; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.)

2. ☐ Separate MESA review ongoing. a. NHESP Tracking # _____ b. Date submitted to NHESP _____

3. ☐ Separate MESA review completed.
Include copy of NHESP "no Take" determination or valid Conservation & Management Permit with approved plan.

3. For coastal projects only, is any portion of the proposed project located below the mean high water line or in a fish run?

- a. ☒ Not applicable – project is in inland resource area only b. ☐ Yes ☐ No

If yes, include proof of mailing, hand delivery, or electronic delivery of NOI to either:

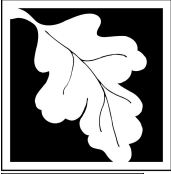
South Shore - Cohasset to Rhode Island border, and the Cape & Islands:

Division of Marine Fisheries -
Southeast Marine Fisheries Station
Attn: Environmental Reviewer
836 South Rodney French Blvd.
New Bedford, MA 02744
Email: DMF.EnvReview-South@state.ma.us

North Shore - Hull to New Hampshire border:

Division of Marine Fisheries -
North Shore Office
Attn: Environmental Reviewer
30 Emerson Avenue
Gloucester, MA 01930
Email: DMF.EnvReview-North@state.ma.us

Also if yes, the project may require a Chapter 91 license. For coastal towns in the Northeast Region, please contact MassDEP's Boston Office. For coastal towns in the Southeast Region, please contact MassDEP's Southeast Regional Office.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40
Town of Arlington Wetlands Protection Bylaw (Article 8)

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Arlington

City/Town

C. Other Applicable Standards and Requirements (cont'd)

Online Users:

Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

4. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?
 a. ☐ Yes ☒ No If yes, provide name of ACEC (see instructions to WPA Form 3 or MassDEP Website for ACEC locations). **Note:** electronic filers click on Website.
 b. ACEC
5. Is any portion of the proposed project within an area designated as an Outstanding Resource Water (ORW) as designated in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00?
 a. ☐ Yes ☒ No
6. Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L. c. 131, § 40A) or the Coastal Wetlands Restriction Act (M.G.L. c. 130, § 105)?
 a. ☐ Yes ☒ No
7. Is this project subject to provisions of the MassDEP Stormwater Management Standards?
 a. ☐ Yes. Attach a copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) and check if:
 1. ☐ Applying for Low Impact Development (LID) site design credits (as described in Stormwater Management Handbook Vol. 2, Chapter 3)
 2. ☐ A portion of the site constitutes redevelopment
 3. ☐ Proprietary BMPs are included in the Stormwater Management System.
- b. ☒ No. Check why the project is exempt:
 1. ☒ Single-family house
 2. ☐ Emergency road repair
 3. ☐ Small Residential Subdivision (less than or equal to 4 single-family houses or less than or equal to 4 units in multi-family housing project) with no discharge to Critical Areas.

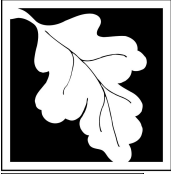
D. Additional Information

- ☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section D and complete Appendix A: Ecological Restoration Notice of Intent – Minimum Required Documents (310 CMR 10.12).

Applicants must include the following with this Notice of Intent (NOI). See instructions for details.

Online Users: Attach the document transaction number (provided on your receipt page) for any of the following information you submit to the Department.

1. ☒ USGS or other map of the area (along with a narrative description, if necessary) containing sufficient information for the Conservation Commission and the Department to locate the site. (Electronic filers may omit this item.)
2. ☒ Plans identifying the location of proposed activities (including activities proposed to serve as a Bordering Vegetated Wetland [BVW] replication area or other mitigating measure) relative to the boundaries of each affected resource area.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40
Town of Arlington Wetlands Protection Bylaw (Article 8)

Provided by MassDEP:

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Arlington

City/Town

D. Additional Information (cont'd)

3. ☒ Identify the method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s), Determination of Applicability, Order of Resource Area Delineation, etc.), and attach documentation of the methodology.
4. ☒ List the titles and dates for all plans and other materials submitted with this NOI.
- Grading/Drainage Plan - 105 Lafayette Street, Arlington, Massachusetts
- | | |
|------------------------|--------------------------|
| a. Plan Title | AI Gala |
| b. Prepared By | c. Signed and Stamped by |
| March 26, 2020 | 1 inch = 10 feet |
| d. Final Revision Date | e. Scale |
- Engineering Drainage Calculations for 105 Lafayette Street, Arlington, Massachusetts by Gala Simon Associates, Inc.
- | | |
|--------------------------------------|----------------|
| f. Additional Plan or Document Title | March 26, 2020 |
| | g. Date |
5. ☐ If there is more than one property owner, please attach a list of these property owners not listed on this form.
6. ☐ Attach proof of mailing for Natural Heritage and Endangered Species Program, if needed.
7. ☐ Attach proof of mailing for Massachusetts Division of Marine Fisheries, if needed.
8. ☒ Attach NOI Wetland Fee Transmittal Form
9. ☒ Attach Stormwater Report, if needed (required under Bylaw).

E. Fees

1. ☐ Fee Exempt: No filing fee shall be assessed for projects of any city, town, county, or district of the Commonwealth, federally recognized Indian tribe housing authority, municipal housing authority, or the Massachusetts Bay Transportation Authority.

Applicants must submit the following information (in addition to pages 1 and 2 of the NOI Wetland Fee Transmittal Form) to confirm fee payment:

134	3/17/2020
2. Municipal Check Number	3. Check date
135	3/17/2020
4. State Check Number	5. Check date
David A. & Lori A.	Philbin
6. Payor name on check: First Name	7. Payor name on check: Last Name



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

Provided by MassDEP:

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40
Town of Arlington Wetlands Protection Bylaw (Article 8)

MassDEP File Number

Document Transaction Number

Arlington

City/Town

F. Signatures and Submittal Requirements

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the wetlands regulations, 310 CMR 10.05(5)(a).

I further certify under penalties of perjury that all abutters were notified of this application, pursuant to the requirements of M.G.L. c. 131, § 40. Notice must be made by Certificate of Mailing or in writing by hand delivery or certified mail (return receipt requested) to all abutters within 100 feet of the property line of the project location.

1. Signature of Applicant

2. Date

3. Signature of Property Owner (if different)

4. Date

5. Signature of Representative (if any)

3/17/2020

6. Date

For Conservation Commission:

Two copies of the completed Notice of Intent (Form 3), including supporting plans and documents, two copies of the NOI Wetland Fee Transmittal Form, and the city/town fee payment, to the Conservation Commission by certified mail or hand delivery.

For MassDEP:

One copy of the completed Notice of Intent (Form 3), including supporting plans and documents, one copy of the NOI Wetland Fee Transmittal Form, and a **copy** of the state fee payment to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery.

Other:

If the applicant has checked the "yes" box in any part of Section C, Item 3, above, refer to that section and the Instructions for additional submittal requirements.

The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
NOI Wetland Fee Transmittal Form
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40
Town of Arlington Wetlands Protection Bylaw (Article 8)

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A. Applicant Information

1. Location of Project:

105 Lafayette Street

a. Street Address

135

c. Check number

Arlington

b. City/Town

\$362.50

d. Fee amount

2. Applicant Mailing Address:

Lori

a. First Name

N/A

c. Organization

105 Lafayette Street

d. Mailing Address

Arlington

e. City/Town

781-646-4101

h. Phone Number

N/A

i. Fax Number

Philbin

b. Last Name

MA

f. State

02474

g. Zip Code

lori.philbin@verizon.net

j. Email Address

3. Property Owner (if different):

Same as Applicant

a. First Name

b. Last Name

c. Organization

d. Mailing Address

e. City/Town

f. State

g. Zip Code

h. Phone Number

i. Fax Number

j. Email Address

B. Fees

Fee should be calculated using the following process & worksheet. **Please see Instructions before filling out worksheet.**

Step 1/Type of Activity: Describe each type of activity that will occur in wetland resource area and buffer zone.

Step 2/Number of Activities: Identify the number of each type of activity.

Step 3/Individual Activity Fee: Identify each activity fee from the six project categories listed in the instructions.

Step 4/Subtotal Activity Fee: Multiply the number of activities (identified in Step 2) times the fee per category (identified in Step 3) to reach a subtotal fee amount. Note: If any of these activities are in a Riverfront Area in addition to another Resource Area or the Buffer Zone, the fee per activity should be multiplied by 1.5 and then added to the subtotal amount.

Step 5/Total Project Fee: Determine the total project fee by adding the subtotal amounts from Step 4.

Step 6/Fee Payments: To calculate the state share of the fee, divide the total fee in half and subtract \$12.50. To calculate the city/town share of the fee, divide the total fee in half and add \$12.50.

To calculate filing fees, refer to the category fee list and examples in the instructions for filling out WPA Form 3 (Notice of Intent).



Bylaw Filing Fees and Transmittal Form

Rules:

1. Fees are payable at the time of filing the application and are non-refundable.
2. Fees shall be calculated per schedule below.
3. Town, County, State, and Federal Projects are exempt from fees.
4. These fees are in addition to the fees paid under M.G.L. Ch. 131, s.40 (ACT).

Fee Schedule (ACC approved 1/8/15):

\$	No./Area	Category
		(R1) RDA - \$150 local fee, no state fee
		(N1) Minor Project - \$200 (house addition, tennis court, swimming pool, utility work, work in/on/or affecting any body of water, wetland or floodplain).
\$600.00	1	(N2) Single Family Dwelling - \$600
		(N3) Multiple Dwelling Structures - \$600 + \$100 per unit all or part of which lies within 100 feet of wetlands or within land subject to flooding.
		(N4) Commercial, Industrial, and Institutional Projects - \$800 + 50¢/s.f. wetland disturbed; 2¢/s.f. land subject to flooding or buffer zone disturbed.
		(N5) Subdivisions - \$600 + \$4/l.f. feet of roadway sideline within 100 ft. of wetlands or within land subject to flooding.
		(N6) Other Fees - copies, printouts; per public records law
		(N7) Minor Project Change - \$50
		(N8) Work on Docks, Piers, Revetments, Dikes, etc - \$4 per linear foot
		(N9) Resource Boundary Delineation (ANRAD) - \$1 per linear foot
		(N10) Certificate of Compliance (COC or PCOC) - No charge if before expiration of Order, \$200 if after that date.
		(N11) Amendments - \$300 or 50% of original local filing fee, whichever is less.
		(N12) Extensions -
		a. Single family dwelling or minor project - \$100.
		b. Other - \$150.
		(N13) Consultant Fee -per estimate from consultant
\$600.00	TOTAL	

Note: Submit this form along with the forms submitted for the ACT - the "Wetlands Filing Fee Calculations Worksheet," and the "Notice of Intent Fee Transmittal Form."

Legal Notice Charge Authorization

DATE:

TO: legals@wickedlocal.com

I hereby authorize Community Newspapers to bill me directly for the legal notice to be published in the Arlington Advocate newspaper on _____ for a public hearing with the Arlington Conservation Commission to review a project at the following location:

Thank you.

Signed: 

Send bill to:

Lori Philbin (Address)

105 Lafayette St.

Arlington MA 02474

781-646-4101 (Phone)

AFFIDAVIT OF SERVICE

Under the *Massachusetts Wetlands Protection Act*


and

the *Town of Arlington Wetlands Protection Bylaw*

I, Sharon A. Sullivan, on behalf of Lori Philbin, hereby certify under the pains and penalties of perjury that on April 20, 2020 I gave notification to abutters in compliance with the second paragraph of Massachusetts General Laws Chapter 131, Section 40 and 310 CMR 10.05 (4) (a) in connection with the following matter:

A Notice of Intent Application filed under the *Massachusetts Wetlands Protection Act* and the *Town of Arlington Wetlands Protection Bylaw* by LEC Environmental Consultants, Inc., on behalf of the Applicant, Lori Philbin, with the Town of Arlington Conservation Commission on April 20, 2020 for property located at 105 Lafayette Street (Assessor's Parcel ID: 2-5-14) in Arlington, Massachusetts.

The form of notification, and a list of the abutters to whom it was given and their addresses, are attached to this Affidavit of Service.



Sharon A. Sullivan
Permitting Technician

4/20/2020

Date



April 20, 2020

CERTIFIED MAIL

«Name»

«Name2»

«Address»

«City», «State» «Zip»

Re: Notice of Intent Application
105 Lafayette Street
Assessor's Parcel ID: 2-5-14
Arlington, Massachusetts

[LEC File #: PhiL\11-166.02]

Dear Abutter:

On behalf of the Applicant, Lori Philbin, LEC Environmental Consultants, Inc. (LEC) has filed a Notice of Intent Application with the Arlington Conservation Commission to raze and rebuild an existing single-family dwelling and associated site appurtenances at the above-referenced site. Portions of the proposed activities are located within the 100-foot Buffer Zone to Bordering Vegetated Wetlands and the outer portion of the 200-foot Riverfront Area associated with Alewife Brook, and within Bordering Land Subject to Flooding. The Applicant proposes to implement erosion controls, and provide compensatory flood storage and stormwater management to minimize the potential for impacts to the resource areas and improve existing site conditions in accordance with the *Massachusetts Wetlands Protection Act* (M.G.L. c. 131, s. 40) and its implementing Regulations (310 CMR 10.00), and the *Town of Arlington Wetlands Protection Bylaw* (Article 8) and its *Wetlands Protection Regulations*.

The Notice of Intent Application and accompanying plans are available for review by the public at the Arlington Conservation Commission. The Public Hearing will be held at the Arlington Town Hall Annex, 730 Massachusetts Avenue, on May 7, 2020 beginning at 7:30 p.m., in accordance with the provisions of the *Massachusetts Wetlands Protection Act* (M.G.L. Ch. 131, s. 40, as amended) and its implementing Regulations (310 CMR 10.00), and the *Town of Arlington Wetlands Protection Bylaw* (Article 8) and its *Wetlands Protection Regulations*. Further information regarding this application will be published at least five (5) days in advance in *The Arlington Advocate*. Notice of the Public Hearing will also be posted at the Arlington Town Hall at least 48 hours in advance.

Due to Governor Baker's Covid-19 State of Emergency and further direction from the CDC, the Governor has suspended certain provisions of the Massachusetts Open Meeting Law. Please check the Town/Conservation Commission website for information relative to remote viewing and/or participation in the public hearing process.

Please do not hesitate to review the materials and/or attend the public hearing should you have questions or concerns about the proposed project.

Sincerely,

LEC Environmental Consultants, Inc.

Richard A. Kirby
Senior Wetland Scientist

LEC Environmental Consultants, Inc.

www.lecenvironmental.com

12 Resnik Road
Suite 1
Plymouth, MA 02360
508-746-9491
508-746-9492 (Fax)

PLYMOUTH, MA

380 Lowell Street
Suite 101
Wakefield, MA 01880
781-245-2500
781-245-6677 (Fax)

WAKEFIELD, MA

100 Grove Street
Suite 302
Worcester, MA 01605
508-753-3077
508-753-3177 (Fax)

WORCESTER, MA

P. O. Box 590
Rindge, NH 03461
603-899-8470
603-899-6726 (Fax)

RINDGE, NH

Notification to Abutters Under the

Massachusetts Wetlands Protection Act

and

the Town of Arlington Wetlands Protection Bylaw

In accordance with the second paragraph of Massachusetts General Laws Chapter 131, Section 40, and the *Town of Arlington Wetlands Protection Bylaw*, you are hereby notified of the following:

The Conservation Commission will hold a public hearing in the second floor conference room of the Town Hall Annex, 730 Massachusetts Avenue, Arlington, on Thursday, May 7, 2020 at 7:30 p.m. in accordance with the provisions of the *Massachusetts Wetlands Protection Act* (M.G.L. Ch. 131, s. 40, as amended) and the *Town of Arlington Bylaws*, Article 8, *Bylaw for Wetland Protection*, for a Notice of Intent from Lori Philbin, to raze and rebuild an existing single-family dwelling and associated site appurtenances at 105 Lafayette Street, within 100 feet of a wetland OR 200 feet of a Riverfront OR a floodway, on Assessor's Property Map #2, Lot #5-14.

A copy of the application and accompanying plans are available for inspection Monday - Thursday 8:00 a.m. – 4:00 p.m. and Friday 8:00 a.m. – Noon at the Conservation Commission office, first floor of the Town Hall Annex, 730 Massachusetts Avenue, Arlington, MA. For more information, call the Applicant's representative, LEC Environmental Consultants, Inc. at 781-245-2500 or the Arlington Conservation Commission at 781-316-3012, or the DEP Northeast Regional Office at 978-694-3200.

NOTE: Notice of the Public Hearing, including its date, time, and place, will be published at least five (5) days in advance in The Arlington Advocate and will also be posted at least 48 hours in advance in the Arlington Town Hall.



Office of the
Board of Assessors
Robbins Memorial Town Hall
Arlington, MA 02476
(781) 316-3050
Assessors@town.arlington.ma.us

Abutters List

Date: March 03, 2020

Subject Property Address: 105 LAFAYETTE ST Arlington, MA
Subject Property ID: 2-5-14

Search Distance: 100 Feet
CONSERVATION

The Board of Assessors certifies the names and addresses of requested parties in interest, all abutters within 100 feet of the property lines, of subject property.

Three handwritten signatures are visible. The top signature appears to be "James L. Feeley". The middle signature is "Robert E. Greeley". The bottom signature is more stylized and difficult to decipher, but it is also a signature.

Board of Assessors

Abutters List

Date: March 03, 2020

Subject Property Address: 105 LAFAYETTE ST Arlington,
MA
Subject Property ID: 2-5-14

Search Distance: 100 Feet

Prop ID: 15-2-1
Prop Location: 0-LOT THORNDIKE ST EXT Arlington, MA
Owner: METROPOLITIAN DIST COMM
Co-Owner:
Mailing Address:
20 SOMERSET STREET
BOSTON, MA 02108

Prop ID: 15-2-2
Prop Location: 0-LOT THORNDIKE ST EXT Arlington, MA
Owner: DEPT/CONSERVATION & RECREATION
Co-Owner: WATER SUPPLY PROTECTION DIV
Mailing Address:
20 SOMERSET ST
BOSTON, MA 02108

Prop ID: 2-5-1
Prop Location: 112 FAIRMONT ST Arlington, MA
Owner: WILDER ALFRED E/GAIL K
Co-Owner:
Mailing Address:
112 FAIRMONT STREET
ARLINGTON, MA 02474

Prop ID: 2-5-14
Prop Location: 105 LAFAYETTE ST Arlington, MA
Owner: PHILBIN DAVID & LORI
Co-Owner:
Mailing Address:
105 LAFAYETTE STREET
ARLINGTON, MA 02474

Prop ID: 2-5-2
Prop Location: 108 FAIRMONT ST Arlington, MA
Owner: KEANE LAWRENCE D
Co-Owner: DENNIS MARK
Mailing Address:
108 FAIRMONT ST
ARLINGTON, MA 02474

Prop ID: 2-5-3
Prop Location: 104-104A FAIRMONT ST Arlington, MA
Owner: FAZZOLARI FRANK A
Co-Owner: FAZZOLARI JOSEPH J
Mailing Address:
104 FAIRMONT ST
ARLINGTON, MA 02474

Prop ID: 2-5-5
Prop Location: 100 FAIRMONT ST Arlington, MA
Owner: BEGOT AURELIEN &
Co-Owner: ZIMMERMAN LARA E
Mailing Address:
100 FAIRMONT STREET
ARLINGTON, MA 02474

Prop ID: 2-7-2
Prop Location: 0-LOT LAFAYETTE ST Arlington, MA
Owner: DEPT/CONSERVATION & RECREATION
Co-Owner: WATER SUPPLY PROTECTION DIV
Mailing Address:
20 SOMERSET ST
BOSTON, MA 02108



The data shown on this site are provided for informational and planning purposes only. The Town and its consultants are not responsible for the misuse or misrepresentation of the data.



- Places by Category
 - Police Station
 - Fire Station
 - School
 - Library
 - Public Works
 - Recreation - Facilities
- Recreation - Fields Courts
- Recreation - Fields Courts
- Open Space: Conservation
- Open Space - Minuteman
- Open Space - Labels
- Open Space
 - Town, State, or Private
 - Other Town Owned
- MA Highways
 - Interstate
 - US Highway
 - Numbered Routes
- Abutting Towns
- Town Boundary
- Parcels
- Buildings
- Cemetery - Roads
 - Road1
 - Road2
 - Road3
 - Road4
- Pavement Markings
- Impervious Surface - For B
- Street
- Sidewalk
- Street Island
- Driveway
- Parking Lot
- Bike Path
- Roads - For Large Scale (f
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- Master Plan Base Map - M
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CAMBRIDGE



**Notice of Intent Application
& Wetland Resource Area Analysis**

105 Lafayette Street
Assessor's Parcel ID: 2-5-14
Arlington, Massachusetts

April 20, 2020

1. Introduction

On behalf of the Applicant and Property Owner, Lori Philbin, LEC Environmental Consultants, Inc., (LEC) is filing the enclosed Notice of Intent (NOI) Application and *Wetland Resource Area Analysis* with the Arlington Conservation Commission under the *Massachusetts Wetlands Protection Act* (M.G.L. c. 131, s. 40, the *Act*), its implementing Regulations (310 CMR 10.00, the *Act Regulations*), the *Town of Arlington Wetlands Protection Bylaw* (Article 8, the *Bylaw*) and its implementing *Wetlands Protection Regulations* (March 1, 2018, the *Bylaw Regulations*). The Applicant is filing this NOI Application to raze and rebuild a single-family dwelling and associated site appurtenances within the 100-foot Buffer Zone to Bordering Vegetated Wetlands (BVW), the 200-foot Riverfront Area to Alewife Brook/Little River, and within Bordering Land Subject to Flooding (BLSF).

As part of this filing, the Applicant proposes to implement mitigation measures, including erosion controls, compensatory flood storage, and stormwater management. The existing conditions and proposed activities are depicted on *Grading/Drainage Plan - 105 Lafayette Street, Arlington, Massachusetts*, and *Details Plan* dated May 27, 2012 and revised through March 26, 2020, (*Site Plans*, Appendix B), prepared by Gala Simon Associates, Inc. Details of the stormwater management design, supporting calculations, and an Operation & Maintenance Plan are included in the *Engineering Drainage Calculations for 105 Lafayette Street, Arlington, Massachusetts*, dated March 26, 2020, and prepared by Gala Simon Associates, Inc (*Drainage Calculations*, attached).

2. General Site Description

The 4,839± square foot property is located in a residential neighborhood north of the Route 2/Alewife Brook Parkway interchange, and across Lafayette Street from the Alewife Greenway Bike Path, within the southeastern portion of Arlington, Massachusetts. More specifically, the property is located at the terminus of Lafayette Street off the northwest side. Residential development associated with Fairmont Street and Lafayette Street occurs north and east of the property, respectively, while undeveloped forested land within Alewife Brook Reservation occurs to the south and

west. The Little River transitions to Alewife Brook south of the site and occurs roughly 156 feet away, across the Alewife Greenway Bike Path, and flows northeasterly toward its convergence with the Mystic River.

The property contains a 1-story, single-family dwelling within the central portion of the site. Access to the dwelling is provided via a paved driveway extending northwest from Lafayette Street. A gravel walkway also extends from Lafayette Street to a paved patio and concrete landing at the front entrance. A wooden deck occurs off the rear of the dwelling. Two wooden sheds are located southwest of the dwelling on adjacent town land. The dwelling is surrounded by landscape plants and lawn areas (see Photo 1), including scattered Norway maple (*Acer platanoides*) and red maple (*Acer rubrum*) shade trees, entanglements of oriental bittersweet (*Celastrus orbiculatus*) and grape (*Vitis* sp.), and scattered patches of black raspberry (*Rubus alleghaniensis*), sapling black cherry (*Prunus serotina*), sapling mulberry (*Morus* sp.), sapling and seedling sumac (*Rhus* sp.), and individuals of porcelain berry (*Ampelopsis brevipedunculata*). The groundcover includes patches of day-lily (*Hemerocallis* sp.), smartweed (*Polygonum* sp.), lemon-balm (*Melissa officinalis*), violets (*Viola* sp.), and scattered patches of burdock (*Arctium minus*) and hostas (*Hosta* sp.), with individuals of dock (*Rumex* sp.), buttercup (*Ranunculus* sp.), and Asiatic dayflower (*Commelina communis*).



Photo 1. Westerly view of front entrance and lawn of dwelling.

Forested uplands occur southwest and southeast of the property within Alewife Brook Reservation. Vegetation within the forested uplands includes a canopy dominated by Norway maple, with patches black cherry. The understory contains patches of saplings, black raspberry, entanglements of oriental bittersweet, and individuals

of burning bush (*Euonymus alatus*), apple (*Malus* sp.), sapling sumac, sapling mulberry, and multiflora rose (*Rosa multiflora*). The groundcover includes scattered seedlings,

poison ivy (*Toxicodendron radicans*), Virginia creeper (*Parthenocissus quinquefolia*), garlic mustard (*Alliaria petiolata*), yellow wood sorrel (*Oxalis stricta*), and scattered individuals of celandine (*Chelidonium majus*).

Utilizing a hand-held, Dutch-style auger, LEC inspected soil conditions within the upland areas along the BVW boundary and observed a gravelly, loamy sand topsoil (A horizon) measuring 19± inches thick, with a soil matrix of 10YR 3/2. No redoximorphic features were observed within the soil profile. This soil profile is ‘non-hydric’ in accordance with *Field Indicators to Identifying Hydric Soils in New England* (Version 4, May 2018, the *Field Indicators Guide*).

2.1

Natural Heritage and Endangered Species Program Designation

According to the 14th Edition of the *Massachusetts Natural Heritage Atlas* (effective August 1, 2017) published by the Natural Heritage & Endangered Species Program (NHESP), no areas of Estimated or Priority Habitat for Rare Wildlife, or Potential or Certified Vernal Pools exist on the site (Appendix A, Figure 3).

3.

Wetland Boundary Determination Methodology

LEC conducted site evaluations on June 23, 2011 and August 2, 2019 to identify and characterize existing protectable Wetland Resource Areas located on or immediately adjacent to the site, and to delineate the off-site Bordering Vegetated Wetland (BVW) boundary and Bank-Mean Annual High Water (MAHW) Line associated with the Little River/Alewife Brook. The extent of Wetland Resource Areas was determined through observations of existing plant communities, hydrologic indicators, and Bankfull Indicators in accordance with the *Act*, its implementing *Regulations*, and the *Bylaw* and *Bylaw Regulations*.

Based on these methods, LEC determined that an offsite BVW occurs southwest of the property, while the Bank-MAHW Line associated with the Little River/Alewife Brook is located southeast of the subject property within Alewife Brook Reservation. LEC delineated the BVW boundary with sequentially numbered, blaze orange surveyor’s tape with the words “LEC Resource Area” printed in black. LEC flagging stations 1 through 5 demarcate the BVW boundary. The Bank-MAHW Line was established with sequentially-numbered safety blue surveyors’ tape labelled B-1 through B-4. The BVW

and Bank-MAHW Line boundaries were survey located by Rober Survey, and are depicted on the attached *Site Plans*. The off-site BVW boundary and Bank-MAHW Line place the 100-foot Buffer Zone and 200-foot Riverfront Area on the subject property.

4. Wetland Resource Areas

Wetland Resource Areas associated with the site include BVW, Riverfront Area, and BLSF. The 100-foot Buffer Zone extends onto the property from the BVW boundary, while the 200-foot Riverfront Area extends onto the property from the Bank-MAHW boundary to Alewife Brook. The entire property is located within BLSF.

4.1 Bordering Vegetated Wetlands

BVW is defined at 310 CMR 10.55(2) as: *freshwater wetlands which border on creeks, rivers, streams, ponds, and lakes...Bordering Vegetated Wetlands are areas where the soils are saturated and/or inundated such that they support a predominance of wetland indicator plants...The boundary of Bordering Vegetated Wetlands is the line within which 50% or more of the vegetational community consists of wetland indicator plants and saturated or inundated conditions exist.*

According to the *Bylaw Regulations* [Section 21 B. (1) and (2)], *Vegetated Wetlands are freshwater wetlands, including both bordering vegetated wetlands (i.e., bordering on freshwater bodies such as on creeks, rivers, streams, ponds and lakes), and isolated vegetated wetlands which do not border on any permanent water body. The types of freshwater wetlands are wet meadows, marshes, swamps, bogs and vernal pools. Vegetated Wetlands are areas where soils are saturated and/or inundated such that they support a predominance of wetland indicator plants. The ground water and surface water hydrological regime, soils and the vegetational community which occur in each type of freshwater wetlands, including both bordering and isolated vegetated wetlands, are defined under the Bylaw based on G.L. c. 131, § 40. (2) The boundary of Vegetated Wetland, whether Bordering or Isolated, is the line within which 50% or more of the vegetational community consists of wetland indicator plants and saturated or inundated conditions exist. Wetland indicator plants shall include but not necessarily be limited to those plant species identified in the Act.*

An offsite BVW characterized as an emergent marsh occurs at the bottom of a steep slope descending southwesterly from the subject property. The sparse sapling layer within the marsh includes scattered individuals of sapling ash (*Fraxinus* sp.) along its edges. The marsh is otherwise dominated by common reed (*Phragmites australis*), with scattered patches of jewelweed (*Impatiens capensis*), and individuals of purple loosestrife (*Lythrum salicaria*), beggar-ticks (*Bidens* sp.), and climbing nightshade (*Solanum dulcamara*).

LEC inspected soils within the BVW using a hand-held, Dutch-style auger and observed a 17-inch thick, sapric organic layer (O_a layer) with a soil matrix color of 10YR 2/1, underlain by a 3-inch thick, fine sandy loam topsoil (A horizon) with a soil matrix color of 10YR 3/2, to a depth of 20+ inches. This soil profile meets the Histosol (A1.) indicator for a hydric soil in accordance with the *Field Indicators Guide*.

LEC flags 1 through 5 demarcate the BVW boundary as it relates to the subject property.

4.2

Bank-Mean Annual High Water

According to the *Act Regulations* [310 CMR 10.54 (2) (c)], Bank is the *first observable break in slope or the mean annual flood level, whichever is lower. The lower boundary of a Bank is the mean annual low flow level*

According to the *Bylaw Regulations*, [Section 4. B. (9)] Bank is defined as *the portion of the land surface which normally abuts and confines a water body, often between the mean annual low flow level and the first observable break in the slope or the mean annual flood level, whichever is lower.*

According to the *Act Regulations* [310 CMR 10.58 (2) (a) 2], Mean Annual High Water (MAHW) is defined as *the line that is apparent from visible markings or changes in the character of soils or vegetation due to the prolonged presence of water and that distinguishes between predominantly aquatic and predominantly terrestrial land. Field indicators of bankfull conditions shall be used to determine the mean annual high-water line. Bankfull field indicators include but are not limited to: changes in slope, changes in vegetation, stain lines, top of point bars, changes in bank materials, or bank undercuts*

MAHW is not defined in the *Bylaw* or *Bylaw Regulations* so the above definition prevails.



Photo 2. Northeasterly view of Alewife Brook

The Little River transitions to Alewife Brook, and occurs roughly 156 feet south of the property, across from Lafayette Street and the Alewife Greenway Bike Path. The portion of the Brook associated with the subject property is contained within a 20 to 30-foot wide channel, and flanked by concrete Banks (see Photo 2.). A metal, chain-link fence occurs along a portion of the Bank.

4.3

Riverfront Area

According to the *Act Regulations* [310 CMR 10.58 2 (a)]: *Riverfront Area is defined as the area of land between a river's mean annual high water line and a parallel line measured horizontally 200 feet away.*

According to the *Bylaw Regulations* [Section 4. B. (68).], Riverfront Area is defined as *the area of land between a river's mean annual high water line and a parallel line measured 200 feet horizontally landward of the mean annual high water line.*

Riverfront Area includes land within 200 feet of the Bank-MAHW line associated with Alewife Brook and encompasses roughly the southeastern half of the property. This 2,321± square foot area comprises roughly the eastern half of the existing dwelling, the driveway, and the adjacent lawn and landscaped areas. The Riverfront Area on the site is considered 'previously developed,' while the footprint of the existing house and pavement, and gravel are considered 'degraded' in accordance with 310 CMR 10.58 (5).

4.4

Bordering Land Subject to Flooding

According to the *Act Regulations* [310 CMR 10.57 (2) (a) 1], Bordering Land Subject to Flooding (BLSF) *is an area with low, flat topography adjacent to and inundated by flood waters rising from creeks, rivers, streams, ponds or lakes. It extends from the banks of*

these waterways and water bodies; where a bordering vegetated wetland occurs, it extends from said wetland.

According to the *Bylaw Regulations* [Section 23 B. (1)(a)(c)]. *Bordering land subject to flooding is an area with low, flat topography adjacent to and inundated by floodwaters rising from brooks, creeks, rivers, streams, pond or lakes. It extends from the banks of these waterways and water bodies; where a bordering vegetated wetland occurs, it extends from said wetland. (c) The boundary of bordering land subject to flooding is the estimated or observed maximum lateral extent of floodwater which will theoretically result or has resulted from the statistical 1%-annual-chance flood (also known as the one-hundred-year frequency storm). 1. Said boundary shall be that determined by reference to the most recently available flood profile data prepared for the Town of Arlington within which the work is proposed under the National Flood Insurance Program (NFIP, currently administered by the Federal Emergency Management agency, successor to the U.S. Department of Housing and Urban Development). Said boundary, so determined, shall be presumed accurate. This presumption may be overcome only by credible evidence from a registered professional engineer or other professional competent in such matters. 2. Notwithstanding the foregoing, where NFIP profile data is unavailable or is determined by the Commission to be outdated, inaccurate or not reflecting current conditions, the boundary of bordering land subject to flooding shall be the maximum lateral extent of floodwater which has been observed or recorded...*

According to the June 4, 2010 *Federal Emergency Management Agency Flood Insurance Rate Map* for Middlesex County, Massachusetts (Map No: 25017C0419E), the entire property is located within Zone AE (elevation 6.85 to 7; Datum NAVD 88): *Special Flood Hazard Areas Subject to Inundation by the 1% Annual Chance Flood; Base Flood Elevations Determined and Floodway Areas in Zone AE: The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.*

BLSF is present where Zone AE extends beyond the BVW and/or Bank-MAHW boundaries to Elevation 6.8 to 7 (Datum: NAVD88), and therefore encompasses the entire property.

5. Proposed Construction Activities

5.1 Raze and Rebuild of a Single-Family Dwelling

The Applicant proposes to raze the existing 1,101± square-foot dwelling, and associated deck, driveway, and walkway, and construct a new 1,398± square-foot dwelling with a porous pavement driveway and front entrance walkway. The front (southeast) entrance walkway will provide access to a wood landing and steps, while the driveway will provide access to an additional wood landing and steps off the side (northeast) entrance of the dwelling. The two sheds located within the southwest portion of the site will be removed and converted to naturally-vegetated land.

In order to meet FEMA Building Code requirements, and in order to comply with compensatory flood storage requirements enumerated in the *Act* and *Bylaw*, the proposed dwelling will be constructed atop a crawl-space foundation. Seven (7) flood vents will be installed in the foundation walls to allow for flood water to ebb and flow as needed during anticipated flooding associated with the 0.1% annual chance flood.

While the new dwelling will measure roughly 25% larger than the existing dwelling, the total impervious area located on site will be decreased by 243± square feet. If one considers the change in impervious area only within the Riverfront Area, the impervious area reduces by 293± square feet. While 538 cubic feet of BLSF will be displaced with the project, minor grading of up to 1 foot east and north of the dwelling, and the proposed foundation with flood vents will provide 2,856± cubic feet of compensatory flood storage.

6. Mitigation Measures

The Applicant intends to implement erosion controls, and provide compensatory flood storage and stormwater management to mitigate for any potential impacts to resource areas, and improve the existing site conditions. A description of each of these mitigating measures is provided below.

6.1 **Erosion and Sedimentation Control**

The Applicant proposes to implement an erosion control program to protect the adjacent Wetland Resource Areas from sedimentation during construction activities. The plan for the control of potential impacts to the adjacent Wetland Resource Areas is based on DEP guidelines and will be comprised of staked compost filter tubes along the Limit-of-Work line, including a staked compost filter tube located on the eastern edge of Lafayette Street. All erosion control measures will remain in place until disturbed areas are stabilized by vegetation. The location of the proposed erosion controls and a detail are shown on the *Site Plans* (Appendix B).

6.2 **Stormwater Management**

While the project results in a decrease of impervious surface, both site-wide and within the Riverfront Area, and therefore not subject to Town of Arlington stormwater management requirements, the Applicant proposes to provide stormwater management for the run-off resulting from the rear of the proposed dwelling. Two (2) 50+ gallon rain barrels are proposed off the rear house corners, and the proposed driveway and walkway will be constructed of porous pavement. Porous pavement details are provided on the *Site Plans* (Appendix B) and drainage calculations showing no change or a reduction in the peak stormwater rates and volumes for the statistical 2, 10, 25, and 100-year storm events are provided in the *Drainage Calculations* (attached). A detailed Operation and Maintenance Plan also is included in the *Drainage Calculations*.

6.3 **Compensatory Flood Storage**

The project will result in a significant increase in flood storage associated with the site, via minor site grading, and flood vents and crawl space associated with the house foundation. As provided in the Flood Fill/Comp. Calculations Table on the *Site Plans*, a total of 538 cubic feet of filling within the floodplain is proposed, while 2,856 cubic feet of compensatory flood storage are proposed, with compensatory flood storage far exceeding floodplain fill for each incremental elevation between elevations 4 and 7 (NAVD 88). In all, a 5.3:1 ratio of compensatory flood storage to floodplain fill is proposed.

In addition to providing compensatory flood storage, the land area containing the two wooden sheds will be converted to a naturally-vegetated area, by way of installing twelve

(12) native shrubs, including six (6) witch hazel (*Hamamelis virginiana*) and six (6) American hazelnut (*Corylus americana*).

7. Regulatory Performance Standards

The *Act Regulations* and *Bylaw Regulations* provide specific performance standards for work within Riverfront Area and Bordering Land Subject to Flooding, and the *Bylaw Regulations* provide additional standards for climate resiliency. Citations of the pertinent performance standards are provided below, along with a description of how the project meets these standards.

7.1 Riverfront Area Performance Standards

While the proposed project is considered a ‘Redevelopment’ within ‘Previously Developed’ Riverfront Area in accordance with 310 CMR 10.58 (5), only a portion of the proposed development occurs within ‘degraded’ Riverfront Area. Regulations at 310 CMR 10.58 (5) (a) state:

...When a lot is previously developed, but no portion of the riverfront area is degraded, the requirements of 310 CMR 10.58 (4) shall be met.

Therefore, in addition to demonstrating compliance with the performance standards associated with ‘Previously Developed’ Riverfront Area in 310 CMR 10.58 (5) (provided below), pertinent citations of the performance standards under 310 CMR 10.58 (4) and a discussion of the project’s compliance with those standards is also provided. The performance standards outlined in 310 CMR 10.58 (4) include:

(a) Protection of Other Resource Areas: The proposed activities are also located within Bordering Land Subject to Flooding (BLSF). Compensatory Flood Storage is proposed to protect the function and value of the onsite BLSF;

(b) Protection of Rare Species: The site is not contained within Rare Species Habitat as noted above in Section 2.1;

(c) Practicable and Substantially Equivalent Economic Alternatives: An Alternatives Analysis is provided below; and

(d) *No Significant Adverse Impact*: A discussion of Significant Adverse Impact is provided below.

7.1.1

Alternatives Analysis

For this project, the scope of alternatives falls under 310 CMR 10.58 (4) (c) 2. a., which states:

The area under consideration for practicable alternatives is limited to the lot, for activities associated with the construction or expansion of a single-family house on a lot recorded on or before August 1, 1996

The purpose of this project is to replace a single-family dwelling in existence as of August 1, 1996. Under existing conditions, a portion of the dwelling and paved driveway are located within the Riverfront Area. While the proposed dwelling measures roughly 25% larger than the existing dwelling, the proposed dwelling is situated within the same general footprint of the existing dwelling, and only two feet closer to the river compared to the existing dwelling (183 feet compared to 185 feet). Despite this modest increase, the proposed alternative elevates the first floor of the structure two feet above the floodplain elevation; reduces impervious area site-wide, and within the Riverfront Area by 293± square feet; provides a 5.3:1 ratio of compensatory flood storage to BLSF fill, and proposes enhancement plantings where two off-site sheds currently exist. Overall, the proposed alternative protects the interests of the *Act* and *Bylaw* far greater than existing conditions or for a development with less mitigating measures.

7.1.2

No Significant Adverse Impact

310 CMR 10.58 (4) (d) states:

The work, including proposed mitigating measures, must have no significant adverse impact on the riverfront area to protect the interests identified in M.G.L. c. 131, s. 40...

310 CMR 10.58 (4) (d) 1. states:

Within 200 foot Riverfront Areas, the issuing authority may allow the alteration of up to 5000 square feet or 10% of the riverfront area within the lot, whichever is greater, on a lot recorded on or before October 6, 1997 or lots recorded after October 6, 1997 subject to the restrictions of 310 CMR 10.58 (4) (c) 2.b.vi., or up to 10% of the riverfront area within a lot recorded after October 6, 1997, provided that:

The property contains 2,321± square feet of Riverfront Area; therefore, 10% of the total Riverfront Area on the site is 232± square feet, which is significantly less than the 5,000 square-foot threshold enumerated above. The project results in a net improvement to the Riverfront Area by reducing impervious surface and by providing stormwater management where none exists today.

- (a) *At a minimum, a 100-foot wide area of undisturbed vegetation is provided...If there is not a 100-foot wide area of undisturbed vegetation within the riverfront area, existing vegetative cover shall be preserved or extended to the maximum extent feasible to approximate a 100-foot wide corridor of natural vegetation...*

The 0-100' Riverfront Area is located off site, and the southeastern property boundary measures 156 linear feet from the Bank-MAHW Line at its closest point. The lot is separated from the Little River/Alewife Brook by Lafayette Street and the Alewife Greenway Bike Path, which occurs within the Alewife Greenway. The existing lawn/landscape within the Riverfront Area will be replaced, and the existing paved driveway will be replaced with a porous pavement driveway. The existing corridor of natural vegetation within the Riverfront Area, to the extent it exists, will remain and impervious area will be located farther from the river compared to existing conditions.

- (b) *Stormwater is managed according to the standards established by the Department in its Stormwater Policy.*

While stormwater management is not required by DEP for single-family dwellings, the Applicant proposes a reduction in impervious surface both site-wide and within the Riverfront Area. Rain barrels also are proposed off the rear house corners to collect roof run-off.

- (c) *Proposed work does not impair the capacity of the riverfront area to provide important wildlife habitat functions...*

The preamble to 310 CMR 10.58 for Riverfront Area states that 'in those portions so extensively altered by human activity that their important wildlife habitat functions have been effectively eliminated, riverfront areas are not significant to the protection of important wildlife habitat...' This language mirrors the preamble language in 310 CMR 10.57 which includes a statement that such areas include paved areas, buildings, lawns, etc. The portion of Riverfront Area slated for development

contains an existing structure, pavement, lawn, and landscaped areas. Furthermore, the proposed development includes a net reduction of impervious surface for the site and within the Riverfront Area.

- (d) *Proposed work shall not impair groundwater or surface water quality by incorporating erosion and sedimentation controls and other measures to attenuate nonpoint source pollution.*

Erosion controls will be installed along the Limit-of-Work line, including on the eastern side of Lafayette Street, and porous pavement and rain barrels are proposed for stormwater management.

7.1.3

Redevelopment Within Previously Developed Riverfront Areas

The *Act Regulations* provide performance standards for work within ‘previously developed’ Riverfront Area. Below are citations of the pertinent performance standards and an explanation of the project’s compliance with the performance standards.

Redevelopment Within Previously Developed Riverfront Areas: Restoration and Mitigation. *Notwithstanding the provisions of 310 CMR 10.58 (4) (c) and (d), the issuing authority may allow work to redevelop a previously developed riverfront area, provided the proposed work improves existing conditions. Redevelopment means replacement, rehabilitation, or expansion of existing structures...A previously developed riverfront area contains areas degraded prior to August 7, 1996 by impervious surfaces from existing structures or pavement, absence of topsoil...Work to redevelop previously developed riverfront area shall conform to the following criteria:*

- (a) *At a minimum, proposed work shall result in an improvement over existing conditions of the capacity of the riverfront area to protect the interests identified in M.G.L. c. 131, s. 40. When a lot is previously developed but no portion of the riverfront area is degraded, the requirements of 310 CMR 10.58 (4) shall be met.*

Impervious surface within the Riverfront Area will be reduced by 293± square feet and impervious surfaces will be situated farther from the river compared to existing conditions.

- (b) *Stormwater management is provided according to standards established by the Department.*

The DEP does not require stormwater management for single-family dwelling construction. However, a reduction in impervious surface, porous pavement, and rain barrels are proposed.

- (c) *Within 200-foot riverfront areas, proposed work shall not be located closer to the river than existing conditions or 100 feet, whichever is less....*

All work will be located greater than 100 feet from the Little River/Alewife Brook, and no work is proposed closer to the Little River/Alewife Brook compared to existing conditions.

- (d) *Proposed work, including expansion of structures, shall be located outside the riverfront area or toward the riverfront area boundary and away from the river, except in accordance with 310 CMR 10.58 (5) (f) or (g).*

All work is located within the outer 200-foot Riverfront Area to Alewife Brook.

- (e) *The area of proposed work shall not exceed the amount of the degraded area, provided that the proposed work may alter up to 10% if the degraded area is less than 10% of the riverfront area, except in accordance with 310 CMR 10.58 (5) (f) or (g).*

The project site contains 2,321± square feet of Riverfront Area; therefore, 10% of the total Riverfront Area on the site is 232± square feet. The existing degraded Riverfront Area measures 816± square feet, and will be reduced to 523± square feet.

- (f) *When an applicant proposes restoration on-site of degraded riverfront area, alteration may be allowed notwithstanding the criteria of 310 CMR 10.58 (5) (c), (d), and (e) at a ratio in square feet of at least 1:1 of restored area to area of alteration not conforming to the criteria. Areas immediately along the river shall be selected for restoration...*

No restoration of degraded riverfront area is proposed or required in accordance with 310 CMR 10.58 (5) (f).

- (g) *When an applicant proposes mitigation either on-site or in the riverfront area within the same general area of the river basin, alteration may be allowed notwithstanding the criteria of 310 CMR 10.58(5)(c), (d), or (e) at a ratio in square feet of at least 2:1 of mitigation area to area of alteration not conforming to the criteria or an equivalent level of environmental protection where square footage is not a relevant*

measure. Alteration not conforming to the criteria shall begin at the riverfront area boundary...

No mitigation or restoration is proposed in accordance with 310 CMR 10.58 (5) (g).

7.2

Bordering Land Subject to Flooding Performance Standards

The *Act Regulations* at 310 CMR 10.57 (4) state that *work within BLSF shall conform to the following criteria:*

(a) *Bordering Land Subject to Flooding*

(1) Compensatory storage shall be provided for all flood storage volume that will be lost as a result of the proposed work.

While the project will result in 538± cubic feet of floodplain displacement, the crawl space house foundation with flood vents and minor site grading will provide 2,856 cubic feet of flood storage between Elevations 4 through 7, resulting in a 5.3:1 ratio of compensatory flood storage to flood displacement. Care will be taken to ensure that the proposed amount of flood storage is provided, in part by establishing grade stakes throughout the site during the construction activities.

(2) Work within BLSF...shall not restrict flows so as to cause an increase in flood stage or velocity.

Proposed work in the floodplain will not restrict flows or cause an increase in flood storage.

(3) Work within those portions of Bordering Land Subject to Flooding found to be significant to the protection of wildlife habitat shall not impair its capacity to provide important wildlife habitat functions...a project or projects on a single lot, for which Notice(s) of Intent is filed on or after November 1, 1987 that (cumulatively) alter(s) up to 10% or 5,000 square feet (whichever is less) of land in this resource area found to be significant to the protection of wildlife habitat, shall not be deemed to impair its capacity to provide important wildlife habitat functions.

According to the BLSF Preamble at 310 CMR 10.57 (1) (a) 3., *Certain portions of Bordering Land Subject to Flooding are also likely to be significant to the*

protection of wildlife habitat...except for those portions of which have been so extensively altered by human activity that their important wildlife habitat functions have been effectively eliminated (such "altered" areas include paved and graveled areas...buildings, lawns, gardens)...

The proposed project will occur entirely within the existing footprint of the existing dwelling, lawn, and other impervious areas and will not impair wildlife habitat functions.

(b) Protection of Rare Wildlife Species

(1) Notwithstanding the provisions of 310 CMR 10.57(4)(a) or (b), no project may be permitted which will have any adverse effect on specified wildlife habitat sites of rare vertebrate or invertebrate species.

There are no specified wildlife habitat sites of rare vertebrate or invertebrate species located on the project site; therefore, the proposed project will have no adverse effect on any such sites.

7.3

Bylaw Performance Standards for Work Within the Floodplain

Section 23 D. of the *Bylaw Regulations* states: *The Commission may permit activity on land subject to flooding provided it shall not result in the following:*

(1) Flood damage due to filling which causes lateral displacement of water that would otherwise be confined within said area.

The project has been designed to provide a 5.3:1 ratio of compensatory flood storage to floodplain displacement and will not result in any increased lateral displacement of flood water.

(2) Adverse effect on public and private water supply or groundwater supply, where said area is underlain by pervious material.

The project will not result in any increase in pollutants that could otherwise potentially result in an adverse effect on public or private water supply or groundwater supply.

(3) An adverse effect on the capacity of said area to prevent pollution of the groundwater, where the area is underlain by pervious material which in turn is covered by a mat of organic peat and muck.

LEC did not observe any such conditions within or near the subject property, and a soil test pit conducted on the site (and described on the *Site Plans*) revealed fine sandy loam to loamy fine sand soils to a depth of 50 inches.

7.4

BLSF Climate Change Impacts

The *Bylaw Regulations* (Section 23 D.) also state that *the applicant shall take into consideration the impacts of climate change on the activities proposed on land subject to flooding, especially in terms of the compensatory flood storage as a climate change resilience strategy. Any such activity shall provide compensatory flood storage for all flood storage volume that will be lost at each elevation. Compensatory flood storage shall be at a 2:1 ratio, minimum, for each unit volume of flood storage lost at each elevation.*

As described above in Section 6.2 of this NOI Report, Project Engineer Al Gala of Gala Simon Associates, Inc., has designed the project to provide a 5.3:1 ratio of proposed flood storage compared to existing flood storage, as provided on the *Flood Fill/Comp. Calculations* section of the *Site Plans*. Work is proposed within BLSF between elevations 4 and 7. A >2:1 increase in available flood storage is provided for each incremental elevation. The first floor of the proposed dwelling (elevation 8.8) will be elevated two feet above the 0.1% Annual Chance Floodplain (elevation 6.8) and flood vents will be installed within the crawl-space foundation walls in order to minimize storm and flood damage. A total of twelve (12) enhancement plantings are proposed within the southwest corner of the property to re-vegetate the land where two sheds will be removed, and impervious area within the entire lot will be decreased.

8.

Summary

On behalf of the Applicant and Property Owner, Lori Philbin, LEC is filing the enclosed NOI Application and *Wetland Resource Area Analysis* with the Arlington Conservation Commission to raze and rebuild a single-family dwelling at 105 Lafayette Street in Arlington, Massachusetts. Portions of the proposed activities will occur within the outer portion of Riverfront Area associated with the Little River/Alewife Brook, and within the 100-foot Buffer Zone to BVW and BLSF, as jurisdictional under the *Act*, its implementing *Regulations*, and the *Bylaw* and *Bylaw Regulations*.

The new dwelling is situated in the same general footprint of the existing dwelling, and a reduction in impervious area site-wide and within the Riverfront Area are proposed. Rain barrels also will improve stormwater management associated with the site. The project results in a 5.3:1 ratio of compensatory flood storage to BLSF fill. Providing this additional flood storage, setting the first-floor elevation two feet higher than the BLSF elevation, reducing impervious area, and providing enhancement plantings also contribute to the climate resiliency associated with the project.

The proposed project, including the proposed mitigating measures, meets or exceeds the performance standards enumerated in the pertinent Statutes and Regulations. Accordingly, the Applicant requests that the Commission issue an Order of Conditions approving the project.

Arlington Conservation Commission, *Town of Arlington Wetlands Protection Bylaw* (Article 8) Town of Arlington, Massachusetts.

Massachusetts Department of Environmental Protection, Division of Wetlands and Waterways 1995. *Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act, A Handbook*. 89 pp.

Massachusetts Natural Heritage and Endangered Species Program Atlas of Estimated Habitat of State-listed Rare Wetlands Wildlife, Natural Heritage & Endangered Species Program, Massachusetts Division of Fisheries & Wildlife, Route 135, Westborough, MA 01581, www.state.ma.us/dfwele/dfw

Massachusetts Wetlands Protection Act (M.G.L. c. 131, §. 40), www.state.ma.us/dep
Massachusetts Wetlands Protection Act Regulations (310 CMR 10.00),
www.state.ma.us/dep

National Flood Insurance Program, Federal Emergency Management Agency Flood Insurance Rate Map, Middlesex County, June 4, 2010.

New England Hydric Soils Technical Committee. 2018, 4th ed., *Field Indicators for Identifying Hydric Soils in New England*, New England Interstate Water Pollution Control Commission, Lowell, MA.

Reed, P.B. 1988. *National List of Plant Species that Occur in Wetlands: 1988 Massachusetts*. U.S. Department of the Interior, Fish and Wildlife Service. NERC-88/18.21

Appendix A

Locus Maps

Figure 1: USGS Topographic Quadrangle

Figure 2: FEMA Flood Insurance Rate Map

Figure 3: MassGIS Orthophoto & NHESP Estimated Habitat Map

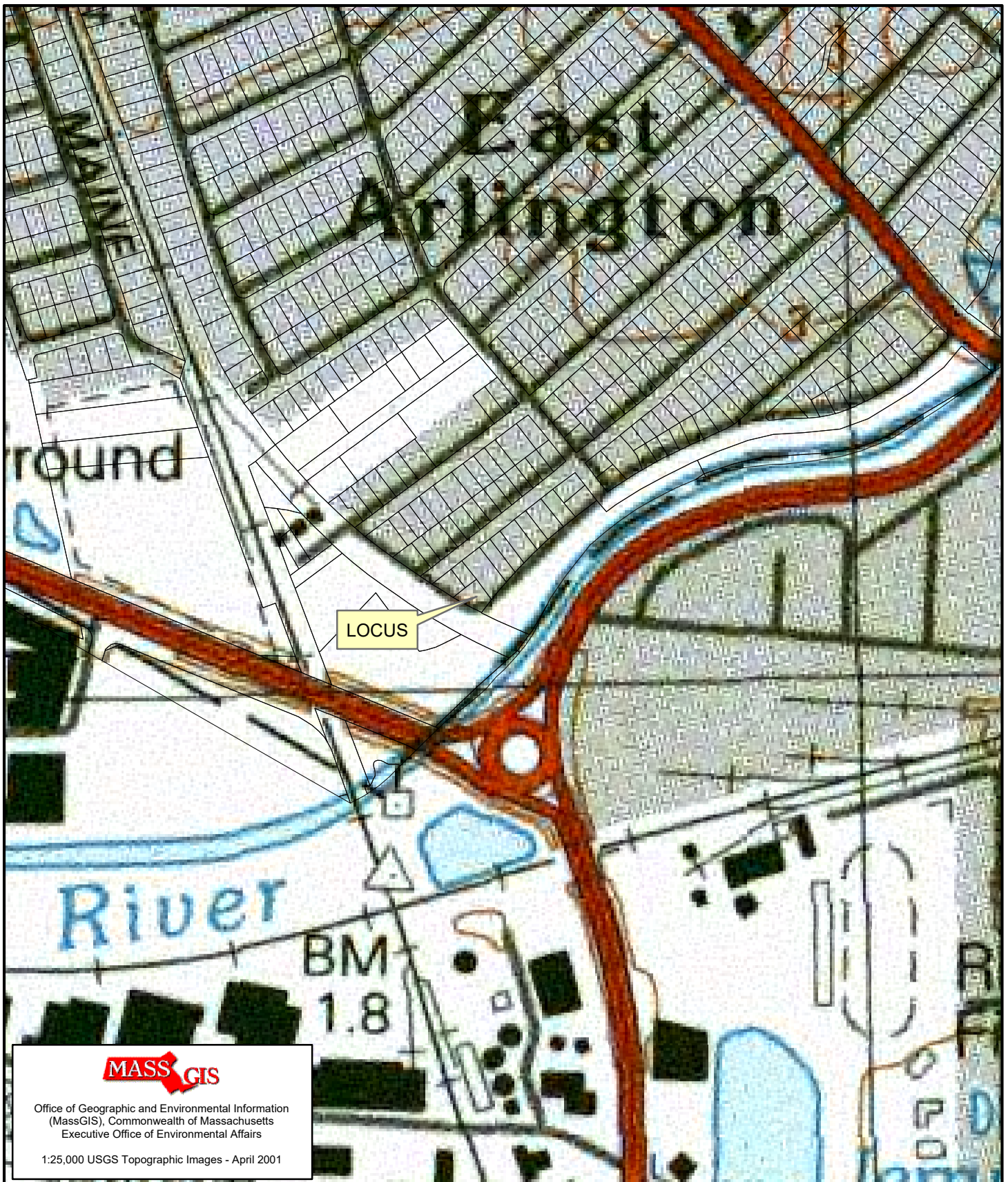
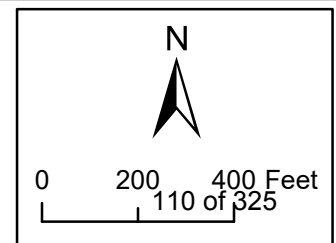
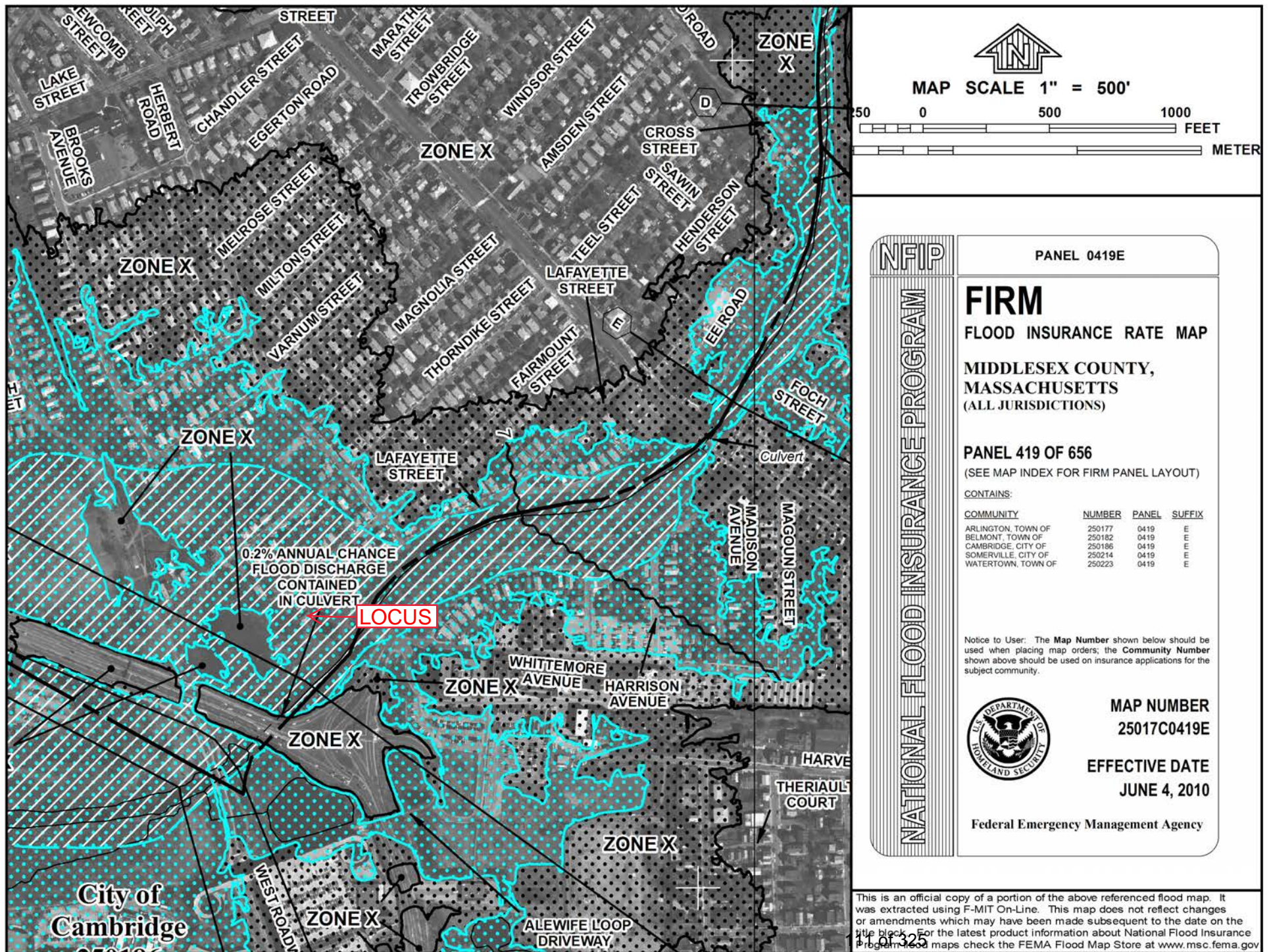


Figure 1: USGS Topographic Map
105 Lafayette Street
Arlington, MA

April 14, 2020





LEGEND



SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.



FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.



ZONE X

OTHER FLOOD AREAS

Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.



ZONE X

OTHER AREAS

Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D

Areas in which flood hazards are undetermined, but possible.



COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS



OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.



1% annual chance floodplain boundary



0.2% annual chance floodplain boundary



Floodway boundary



Zone D boundary



CBRS and OPA boundary



Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.



Base Flood Elevation line and value; elevation in feet*

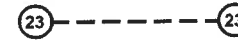
(EL 987)

Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988



Cross section line



Transect line

87°07'45", 32°22'30"

Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere

2476000mN

1000-meter Universal Transverse Mercator grid values, zone 19

600000 FT

5000-foot grid values: Massachusetts State Plane coordinate system, Mainland zone (FIPZONE 2001), Lambert Conformal Conic projection

DX5510 x

Bench mark (see explanation in Notes to Users section of this FIRM panel)

● M1.5

River Mile

MAP REPOSITORY

Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP

June 4, 2010

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL



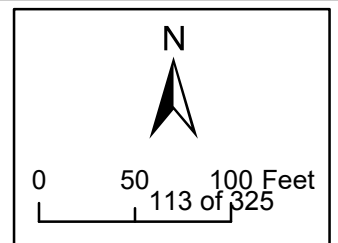
Environmental Consultants, Inc.

Wakefield, MA
781.245.2500

www.lecenvironmental.com

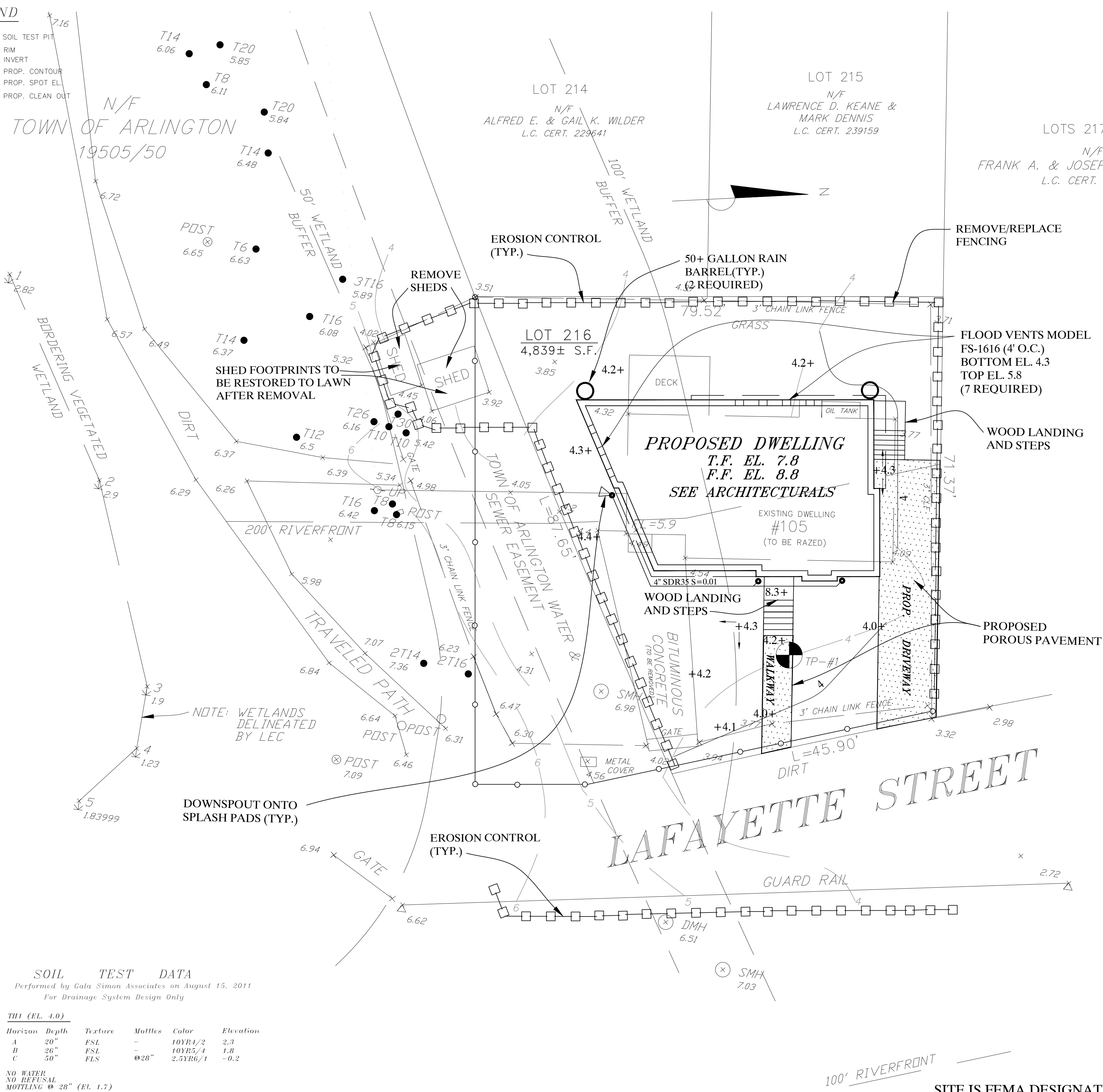
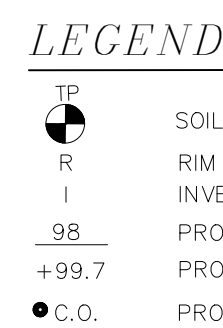
Figure 3: MassGIS Orthophoto & NHESP Map
105 Lafayette Street
Arlington, MA

April 14, 2020



Appendix B

Drainage/Grading Plan 105 Lafayette Street, Arlington, Massachusetts,
dated May 27, 2012 and revised through March 26, 2020, prepared by Gala Simon Associates, Inc.



<u>Existing Flood Storage</u>			<u>Proposed Flood Storage</u>		
El.	Area (s.f.)	Volume (c.f.)	El.	Area (s.f.)	Volume (c.f.)
4.0	1649	2714	4.0	1292	4688
5.0	3779	3779	5.0	4688	4688
6.0	3779	3779	6.0	4688	4688
7.0	3779		7.0	4688	

FLOOD STORAGE CALCULATIONS WITHIN PROPERTY

NOTE: CALCULATIONS FOR FLOOD STORAGE UNDER PROPOSED CONDITIONS WERE PERFORMED INCLUDING THE TOTAL VOLUME ENTERING THE FOUNDATION THROUGH THE VENTS.

SITE PLAN

SCALE: 1" = 10'

<u>Filled Flood Storage</u>			<u>Compensatory Flood Storage</u>		
El.	Area (s.f.)	Volume (c.f.)	El.	Area (s.f.)	Volume (c.f.)
4.0	475		4.0	952	
5.0	120	298	5.0	952	952
6.0	120	120	6.0	952	952
7.0	120	120	7.0	952	952

FLOOD FILL/COMP. CALCULATIONS

NOTE: COMPENSATORY VOLUMES CALCULATED IN AREAS NOT PREVIOUSLY CONSIDERED FLOODPLAIN
INITIAL ELEVATION AT 4.0 FOR SIMPLIFICATION

TOWN OF ARLINGTON ENGINEERING DIVISION		
INSPECTION SIGN OFF:		
1. BOTTOM OF BEDS	_____ <i>INSPECTOR</i>	_____ <i>DATE</i>
2. POST INSTALLATIONS PRIOR TO BACKFILL	_____ <i>INSPECTOR</i>	_____ <i>DATE</i>

SUMMARY OF STORMWATER RUNOFF AND VOLUME				
STORM EVENT	EXISTING CONDITIONS PEAK		PROPOSED CONDITIONS PEAK	
	Runoff (cfs)	Volume (af)	Runoff (cfs)	Volume (af)
2-year (3.23 in)	0.20	0.014	0.20	0.014
10-year (4.90 in)	0.49	0.033	0.46	0.031
25-year (6.20 in)	0.73	0.049	0.69	0.046
100-year (8.89 in)	1.26	0.086	1.18	0.080

PRE VS. POST IMPERVIOUS AREAS		
RUNOFF SURFACE	EXISTING (SF)	PROPOSED (SF)
ROOF	1,101	1,398
DRIVEWAY	406	0
SHED	134	0
TOTAL	1,641	1,398

RIVERFRONT IMPERVIOUS AREAS	
EXISTING (SF)	PROPOSED (SF)
816	523

GENERAL NOTES

1. EXISTING CONDITIONS SURVEY INFORMATION OBTAINED FROM ROBER SURVEY, ARLINGTON, MA. OWNER/CLIENT ASSUMES ALL RESPONSIBILITY FOR SOURCES AND AUTHORIZATION TO USE ELECTRONIC AND RECORD FILES.
2. THE CONTRACTOR SHALL VERIFY ALL EXISTING INFORMATION ON THE GROUND AND SHALL REPORT ALL DISCREPANCIES TO THE ENGINEER IMMEDIATELY FOR A DECISION PRIOR TO CONSTRUCTION.
3. ALL AREAS OUTSIDE OF THE LIMIT OF WORK LINES SHALL NOT BE DISTURBED IN ANY MANNER BY THE CONTRACT OPERATIONS. THE CONTRACTOR SHALL KEEP OUT OF THESE AREAS AND PRESERVE THEIR EXISTING CHARACTER.
4. INSTALL TEMPORARY EROSION CONTROL MEASURES PRIOR TO CONSTRUCTION FOR APPROVAL BY THE DESIGN ENGINEER AND CONSERVATION COMMISSION.
5. PROVIDE SMOOTH TRANSITION AT CHANGES IN GRADE EXCEPT AS INDICATED ON THE DRAWINGS AND AS DIRECTED BY THE ENGINEER.
6. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL UNDERGROUND UTILITY LINES; ACTIVE OR NOT, AND SHALL MAINTAIN A CLOSE AND CONSTANT CONTACT WITH ALL UTILITY COMPANIES INVOLVED. CALL DIG-SAFE 888-344-7233 THE TOWN OF ARLINGTON WATER AND SEWER DIVISION IS NOT A MEMBER OF DIGSAFE.
7. ALL ELEVATIONS ARE REFERENCED TO NAVD 1988 DATUM.
8. CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS, PERMITTING, AND LICENSES ISSUED AT THE FEDERAL, STATE AND LOCAL AGENCIES.
9. CONTRACTOR SHALL COORDINATE ALL SITE UTILITY IMPROVEMENTS WITH THE TOWN OF ARLINGTON OFFICIALS.
10. ENGINEER IS TO BE CONTACTED BY CONTRACTOR TO PERFORM AS BUILT MEASUREMENTS.
11. OWNER/DEVELOPER IS TO COMPLY WITH ALL OF MASSACHUSETTS DEP SITE DEVELOPMENT REGULATIONS.
12. ROADWAY IS TO BE SWEEP, OR OTHERWISE CLEANED OF DEBRIS AND SEDIMENT, AT THE END OF EACH WORKDAY.
13. CONTRACTOR IS TO COORDINATE INSPECTIONS OF THE SUBSURFACE DRAINAGE SYSTEM WITH THE TOWN OF ARLINGTON ENGINEERING DIVISION. ONE INSPECTION WILL BE REQUIRED FOR THE BOTTOM OF THE BED AND ANOTHER AFTER INSTALLATION AND PRIOR TO BACKFILLING. ENGINEERING DIVISION REQUIRES 24 HOURS ADVANCE NOTICE.
14. ADDITIONAL PERMITTING WILL BE REQUIRED THROUGH THE ARLINGTON ENGINEERING DIVISION FOR PROPOSED CUT AND CAP ACTIVITIES, WATER SERVICE INSTALLATION, SEWER SERVICE INSTALLATION, AND CURB CUT WORK.
15. AN AS-BUILT PLAN OF THE SURFACE DRAINAGE SYSTEM AND ANY IMPERVIOUS AREAS ON SITE SHALL BE PROVIDED TO THE TOWN OF ARLINGTON ENGINEERING DIVISION FOLLOWING INSTALLATION. THIS PLAN SHALL INCLUDE SWING TIES, ELEVATIONS, AND OFFSETS.
16. THE CONTRACTOR IS TO PROVIDE A FIELD AS-BUILT SKETCH, TO THE ENGINEERING DIVISION AT THE TIME OF INSPECTIONS.
17. SHOULD SUBSURFACE CONDITIONS VARY FROM THOSE IN THE TEST HOLES, THE DESIGN ENGINEER SHALL BE CONTACTED AND ANY REVISIONS TO THE STORM WATER PLAN SHALL BE SUBMITTED TO THE ENGINEERING DIVISION FOR REVIEW.
18. ALL TREE ROOTS ENCOUNTERED DURING EXCAVATION SHALL BE CUT CLEANLY UNDER THE SURVEY DIRECTION OF A CERTIFIED ARBORIST.
19. CONTRACTOR IS TO MINIMIZE ABUTTER IMPACTS DURING DEMOLITION OF THE EXISTING DWELLING.
20. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE WITHIN OR OUTSIDE THE LIMIT OF WORK DUE TO CONTRACTOR OPERATIONS. CONTRACTOR SHALL RESTORE ANY DAMAGED AREAS TO THEIR ORIGINAL CONDITION AT NO ADDITIONAL COST TO THE OWNER.
21. CONTRACTOR IS TO VERIFY DWELLING DIMENSIONS WITH ARCHITECTURAL PLANS.
22. EXISTING CONTOURS PREPARED BY GSA BY INTERPOLATION OF SURVEY SPOT ELEVATIONS.

DRAINAGE NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR THE VERTICAL AND HORIZONTAL CONTROLS OF THE PROJECT.
2. CONTRACTOR IS TO REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATION OF HOUSE DOWNSPOUTS AND ELEVATIONS.
3. THE MINIMUM CLEARANCE FROM THE BOTTOM OF THE POROUS PAVEMENT SYSTEMS TO REEFLECTOR GRASS SHALL BE 12 INCHES.
4. IN THE EVENT THAT THIS CLEARANCE CANNOT BE MAINTAINED, ENGINEER IS TO BE NOTIFIED
5. ALL DRAINAGE PIPING IS SDR35 PVC.
5. STORMWATER RUNOFF SHALL NOT BE DIRECTED ACROSS ADJACENT PROPERTY LINES.

**Gala Simon
Associates Inc.**
394 LOWELL STREET, SUITE 18
LEXINGTON, MA 02420
Tel: (781) 676-2962

Gala Simon Associates

GSA

GRADING/DRAINAGE PLAN

**105 LAFAYETTE STREET
ARLINGTON, MASSACHUSETTS**

Job No. 1120		Date: 5/27/12
Drawn By: AG		Scale: AS SHOWN
Rev#	Date:	Description:
1	5/23/13	House
2	3/26/20	House

C-0

UTILITY NOTES:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING AND DETERMINING THE LOCATION, SIZE AND ELEVATION OF ALL EXISTING UTILITIES, SHOWN OR NOT SHOWN ON THIS PLAN, PRIOR TO ANY CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES FOUND INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION BEFORE PROCEEDING WITH THE WORK.

THE LOCATION OF ALL UNDERGROUND UTILITIES SHOWN HEREON ARE APPROXIMATE AND ARE BASED ON THE FIELD LOCATION OF ALL VISIBLE STRUCTURES SUCH AS CATCH BASINS, MANHOLES, WATERGATES, ETC. AND COMPILED FROM PLANS SUPPLIED BY VARIOUS UTILITY COMPANIES AND GOVERNMENT AGENCIES. ALL CONTRACTORS SHOULD NOTIFY, IN WRITING, ALL UTILITY COMPANIES OR AGENCIES PRIOR TO ANY EXCAVATION WORK. CALL DIG-SAFE AT 1-888-344-7233

CALL THE TOWN OF ARLINGTON WATER AND SEWER DIVISION AT 781-316-3310 FOR A MARKOUT. THE TOWN OF ARLINGTON WATER AND SEWER DIVISION IS NOT A MEMBER OF DIG-SAFE.

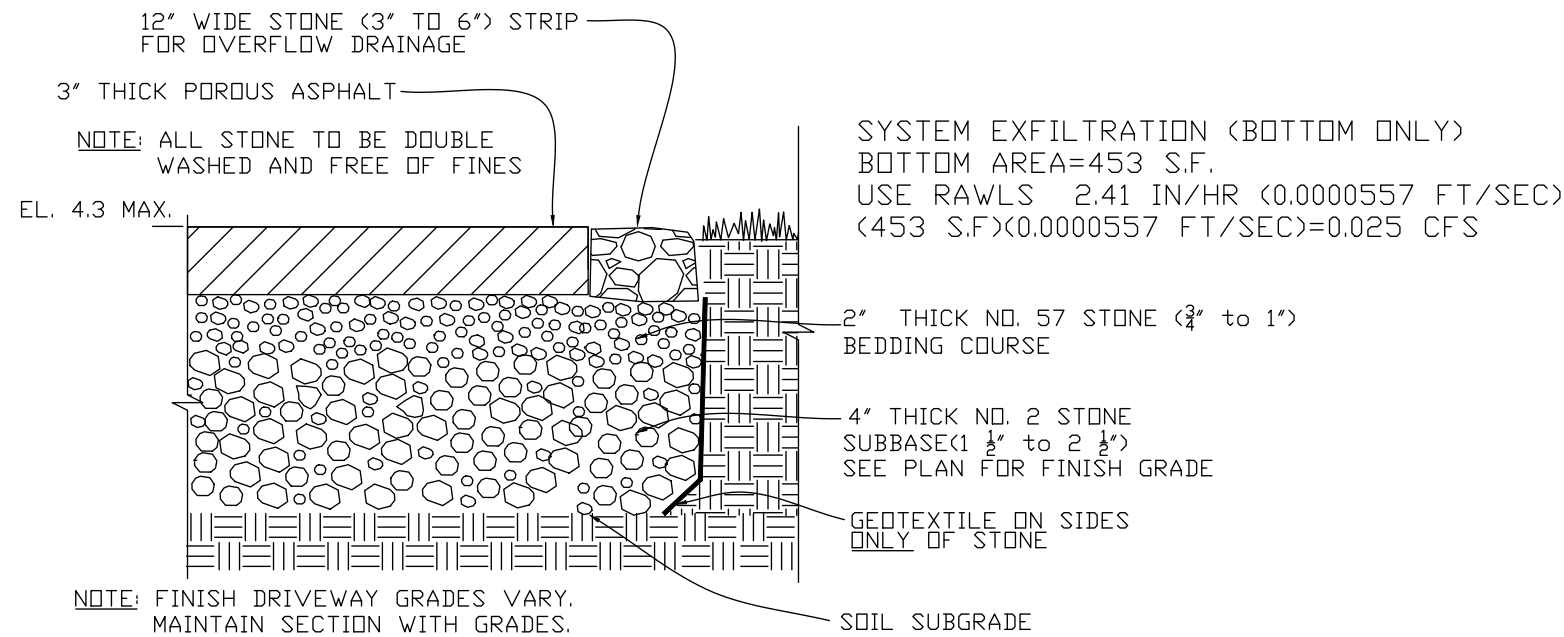
ADDITIONAL PERMITTING WILL BE REQUIRED THROUGH THE ARLINGTON ENGINEERING DIVISION FOR PROPOSED CUT AND CAP ACTIVITIES, WATER SERVICE INSTALLATION, SEWER SERVICE INSTALLATION, AND CURB CUT WORK.

AS BUILT NOTE:

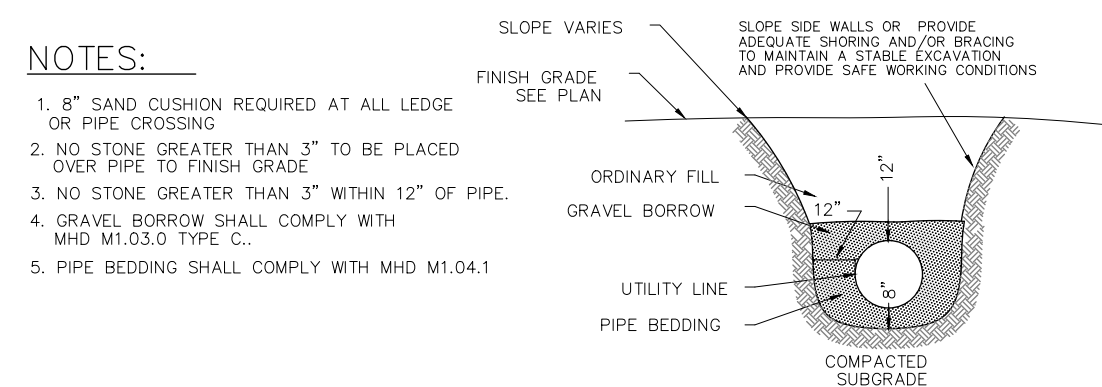
CONTRACTOR IS TO CONTACT ENGINEER FOR AS-BUILT MEASUREMENTS .

LAYOUT & GRADING NOTES

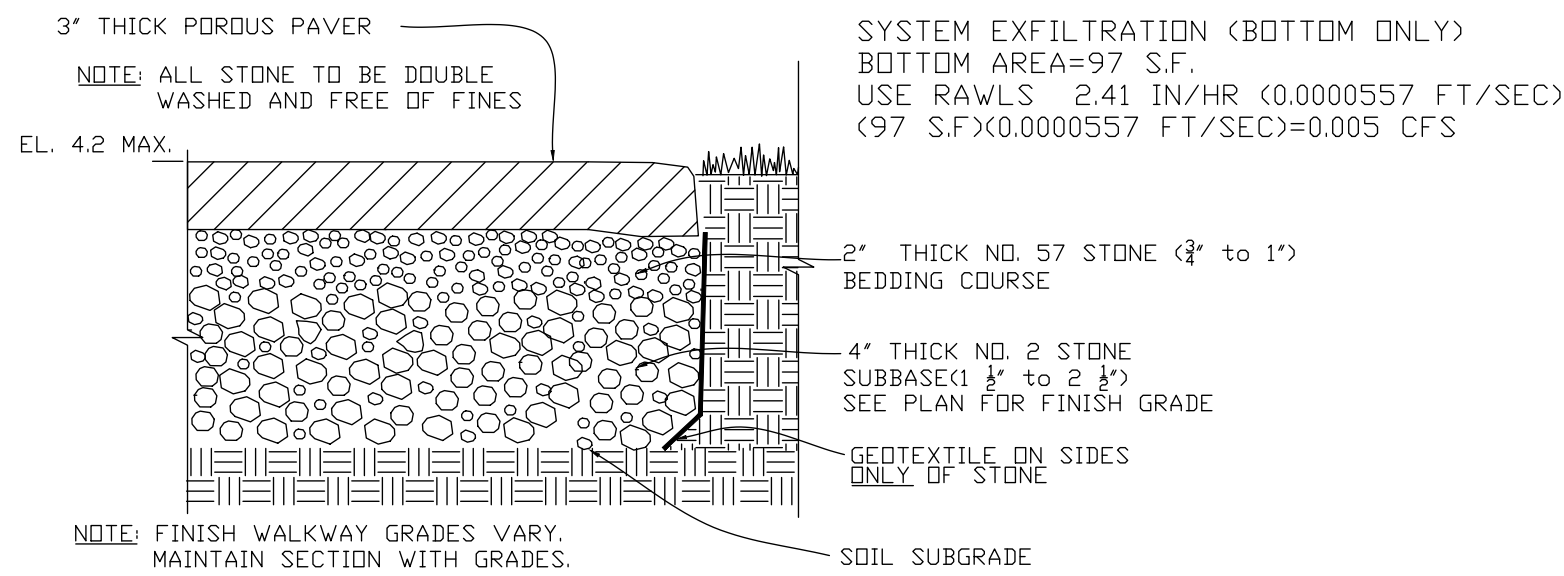
1. CONSULT ALL DRAWINGS AND SPECIFICATIONS FOR COORDINATION REQUIREMENTS BETWEEN ALL TRADES PRIOR TO COMMENCING NEW CONSTRUCTION.
2. LOCATION OF EXISTING UTILITIES SHOWN ARE DIAGRAMMATIC ONLY. CONTRACTOR SHALL CONTACT THE PROPER AUTHORITIES IN WRITING TO CONFIRM THE LOCATIONS OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. ANY DAMAGE INCURRED DURING CONSTRUCTION TO ANY UTILITY SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO OWNER.
3. CONTRACTOR TO REFER TO A SURVEYOR PLOT PLAN FOR ACCURATE OFFSETS TO TO PROPERTY LINE.



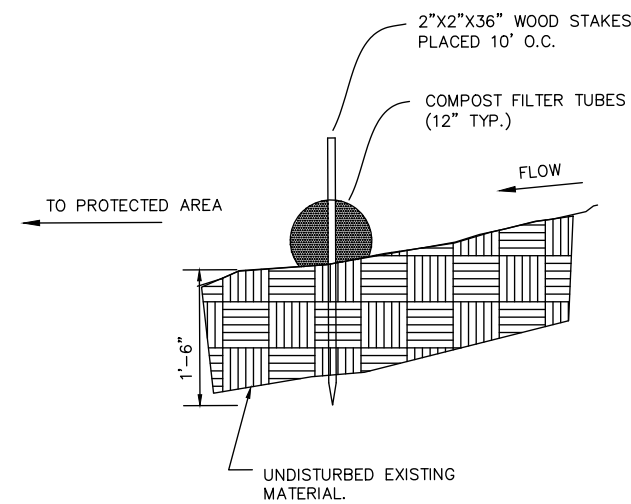
1 BITUMINOUS POROUS PAVEMENT
C-1 SCALE: NTS (DRIVEWAY)



2 TYP. UTILITY TRENCH
C-1 SCALE: NTS



3 POROUS PAVER DETAIL
C-1 SCALE: NTS (WALKWAY)



4 EROSION CONTROL
C-1 SCALE: NTS

Gala Simon Associates Inc.
394 LOWELL STREET, SUITE 18
LEXINGTON, MA 02420
Tel: (781) 676-2962

GSA
Civil Engineers

DETAILS

105 LAFAYETTE STREET
ARLINGTON, MASSACHUSETTS

Job No. 1120	Date: 5/27/12
Drawn By: AG	Scale: AS SHOWN
Rev#	Date: Description:
1	5/23/13 House
2	3/26/20 House

C-1

***Engineering Drainage Calculations
for
105 Lafayette Street
Arlington, Massachusetts***

Prepared by

***Gala Simon Associates, Inc.
394 Lowell Street, Suite 18
Lexington, MA 02420
781-676-2962***

March 26, 2020



Project: 105 Lafayette Street, Arlington, MA

Date: March 26, 2020

Project Narrative:

The site preparation of the project consists of the demolition of the existing dwelling and removal of a shed. The project consists of the construction of a new dwelling in the general vicinity as the existing dwelling. Porous pavement is proposed for the walkway and driveway.

Soils on the site are considered Hydrological Soil Type D per USDA soil maps. On-site soil testing performed by Gala Simon Associates, Inc., on August 15, 2011 indicate sandy loam (group B) on-site.

The 24-hour rainfall amounts used in the hydrological calculations were obtained from the Northeast Regional Climate Center's, "Atlas of Precipitation Extremes for the Northeastern United States and Southeastern Canada".

Summary of Results:

The following table summarizes the peak flows and volumes from the property under Existing and Proposed Conditions.

Summary of Stormwater Runoff and Volume

<i>Storm Event</i>	<i>Existing Conditions Peak</i>		<i>Proposed Conditions Peak</i>		<i>Δ</i>	
	<i>Runoff (cfs)</i>	<i>Volume (af)</i>	<i>Runoff (cfs)</i>	<i>Volume (af)</i>	<i>Runoff (cfs)</i>	<i>Volume (af)</i>
<i>2-Year (3.23 in)</i>	0.20	0.014	0.20	0.014	0.00	0.000
<i>10-Year (4.90 in)</i>	0.49	0.033	0.46	0.031	-0.03	-0.002
<i>25-Year (6.20 in)</i>	0.73	0.049	0.69	0.046	-0.04	-0.003
<i>100-Year (8.89 in)</i>	1.26	0.086	1.18	0.080	-0.08	-0.006

Conclusions:

1. As analyzed, the peak rates of runoff and volumes will be maintained for the 2, 10, 25 and 100 year storm events.

Project: 105 Lafayette Street, Arlington

Date: March 26, 2020

Existing Conditions

Total Area:	8,755 s.f.
Total Impervious Area:	1,641 s.f.
Dirt Road:	406 s.f.
Total Lawn Area:	5,271 s.f.

Hydrocad Model for Existing Conditions:

Total Area:	8,755 s.f.
Impervious:	1,641 s.f.
Dirt Road:	1,843 s.f.
Lawn Area:	5,271 s.f.

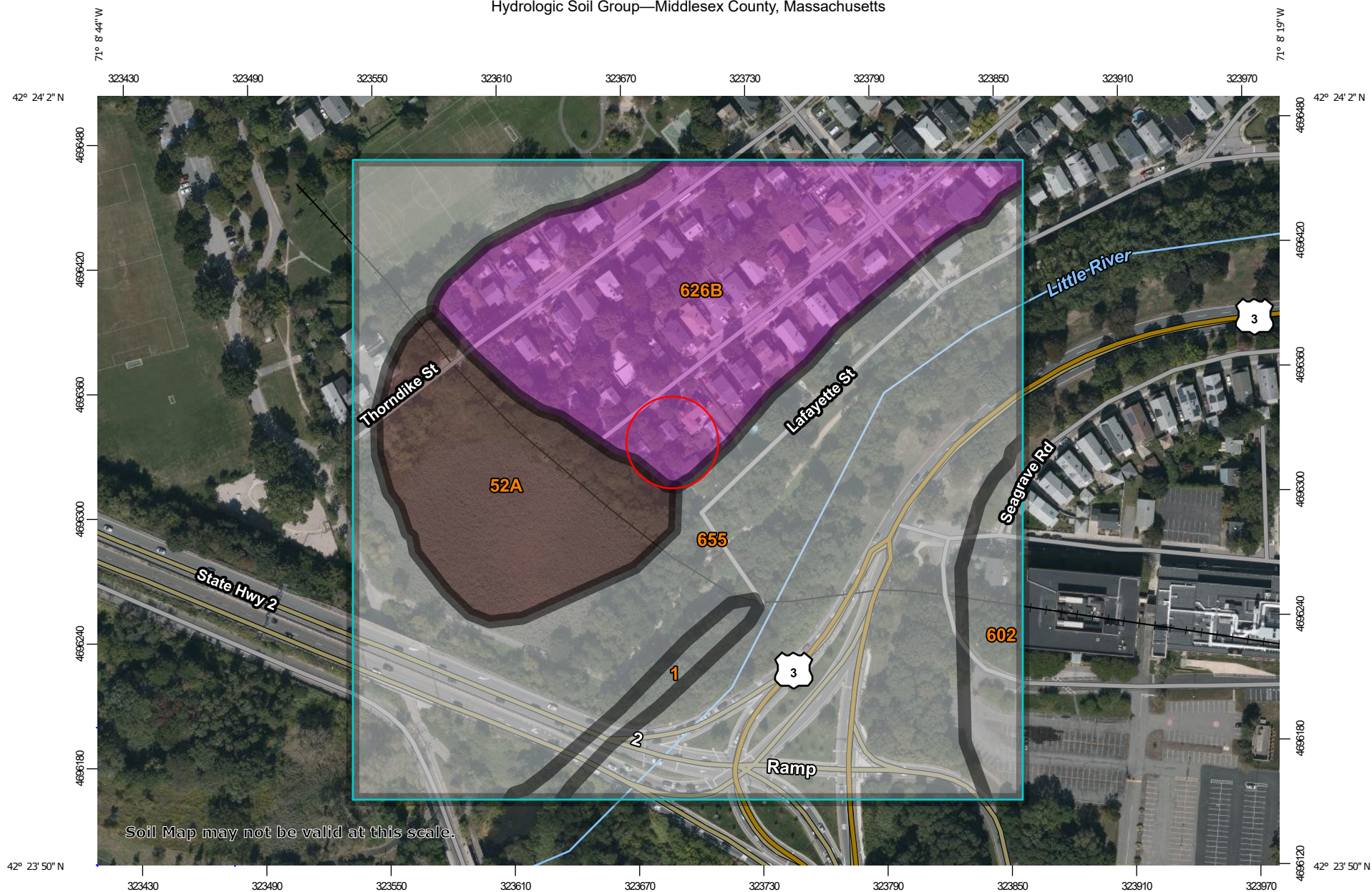
Hydrocad Model for Proposed Conditions

Total Area:	8,755 s.f.
	Impervious: 1,989 s.f.
	Dirt Road: 1,843 s.f.
	Lawn: 4,923 s.f.
Area into Porous Pavers:	765 s.f.
	Impervious: 548 s.f.
	Lawn: 217 s.f.
Remainder of Land:	7,990 s.f.
	Impervious: 1,441 s.f.
	Dirt Road: 1,843 s.f.
	Lawn: 4,706 s.f.

The storm values were compared using the Existing Conditions node and the Proposed Conditions Remainder of Land node.

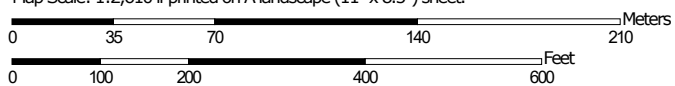
USDA
Soil Mapping

Hydrologic Soil Group—Middlesex County, Massachusetts




Soil Map may not be valid at this scale.

Map Scale: 1:2,610 if printed on A landscape (11" x 8.5") sheet.











Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND**Area of Interest (AOI)**
 Area of Interest (AOI)
Soils**Soil Rating Polygons**





-  A
-  A/D
-  B
-  B/D
-  C
-  C/D
-  D
-  Not rated or not available


Soil Rating Lines






-  A
-  A/D
-  B
-  B/D
-  C
-  C/D
-  D
-  Not rated or not available


Soil Rating Points

-  A
-  A/D
-  B
-  B/D

-  C
-  C/D
-  D
-  Not rated or not available

Water Features
 Streams and Canals
Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background
 Aerial Photography
MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Middlesex County, Massachusetts
Survey Area Data: Version 19, Sep 12, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 11, 2019—Oct 5, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
1	Water		0.4	1.8%
52A	Freetown muck, 0 to 1 percent slopes	B/D	3.1	12.5%
602	Urban land		1.0	4.2%
626B	Merrimac-Urban land complex, 0 to 8 percent slopes	A	6.1	24.7%
655	Udorthents, wet substratum		14.0	56.7%
Totals for Area of Interest			24.7	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

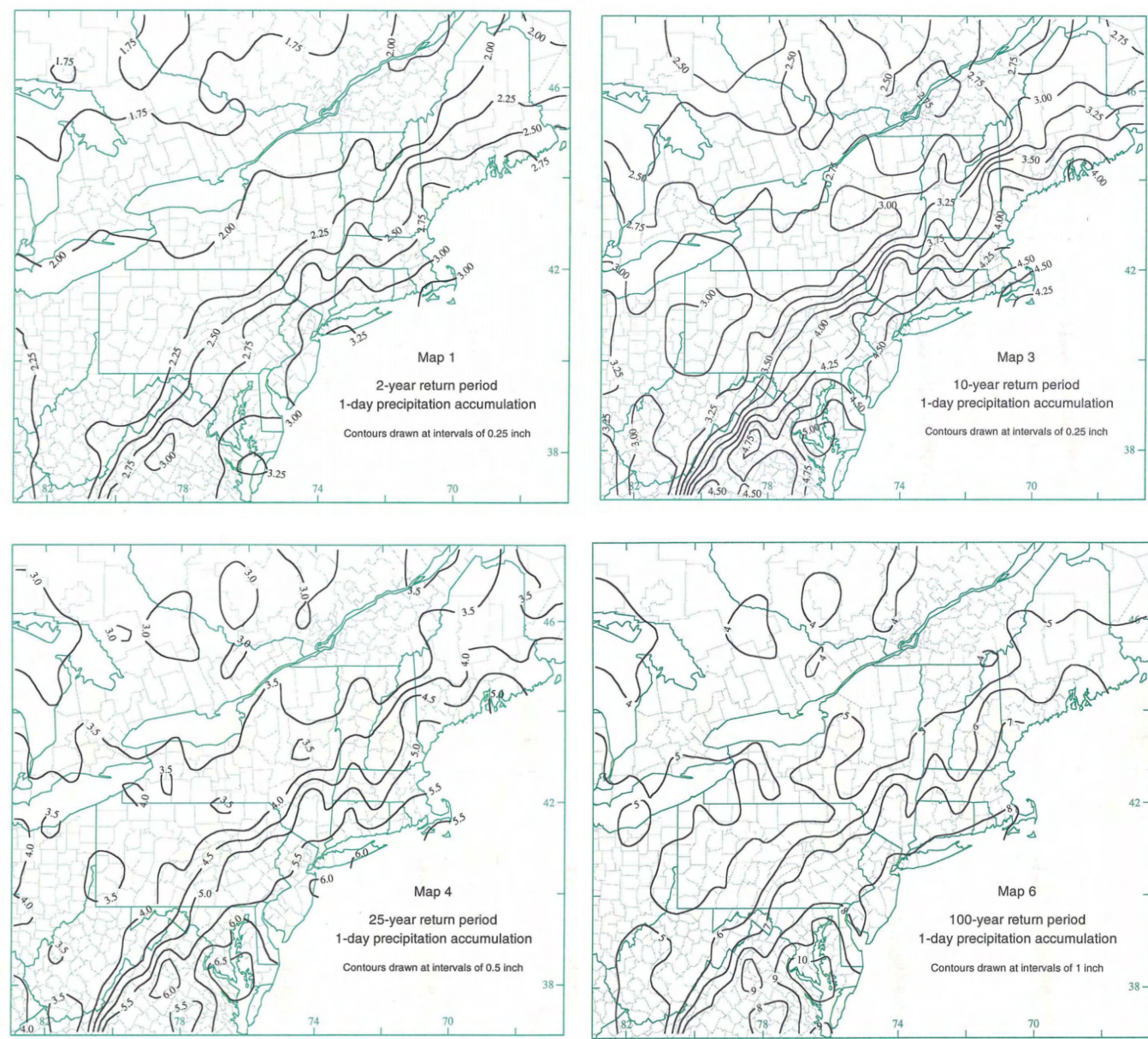
Component Percent Cutoff: None Specified

Tie-break Rule: Higher

*Atlas
of
Precipitation Extremes*

24-hour rainfall amounts obtained from the Northeast Regional Climate Center, “Atlas of Precipitation Extremes for the Northeastern United States and Southeastern Canada.”

24-Hour Storm Event	Rainfall (inches)
2-year	3.23
10-year	4.90
25-year	6.20
100-year	8.89



Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Smoothing	Yes
State	Massachusetts
Location	
Longitude	71.142 degrees West
Latitude	42.399 degrees North
Elevation	0 feet
Date/Time	Tue, 10 Mar 2020 11:58:38 -0400

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.43	0.53	0.70	0.87	1.10	1yr	0.75	1.04	1.28	1.63	2.09	2.69	2.94	1yr	2.38	2.83	3.29	3.98	4.65	1yr
2yr	0.35	0.54	0.67	0.88	1.11	1.40	2yr	0.96	1.28	1.62	2.04	2.57	3.23	3.59	2yr	2.86	3.45	3.95	4.70	5.35	2yr
5yr	0.42	0.65	0.81	1.09	1.39	1.78	5yr	1.20	1.61	2.06	2.60	3.26	4.09	4.56	5yr	3.62	4.39	5.00	5.97	6.69	5yr
10yr	0.47	0.74	0.93	1.27	1.65	2.12	10yr	1.43	1.91	2.48	3.12	3.92	4.90	5.47	10yr	4.33	5.26	5.99	7.16	7.92	10yr
25yr	0.56	0.89	1.13	1.56	2.07	2.68	25yr	1.79	2.41	3.14	3.97	4.98	6.20	6.96	25yr	5.49	6.69	7.59	9.10	9.91	25yr
50yr	0.63	1.02	1.30	1.83	2.46	3.22	50yr	2.12	2.86	3.78	4.79	5.99	7.42	8.36	50yr	6.57	8.04	9.09	10.92	11.75	50yr
100yr	0.73	1.18	1.52	2.15	2.93	3.85	100yr	2.53	3.41	4.53	5.74	7.18	8.89	10.04	100yr	7.87	9.65	10.88	13.10	13.93	100yr
200yr	0.84	1.36	1.77	2.53	3.49	4.62	200yr	3.01	4.06	5.44	6.91	8.62	10.65	12.07	200yr	9.42	11.60	13.04	15.73	16.53	200yr
500yr	1.01	1.66	2.17	3.14	4.40	5.86	500yr	3.79	5.11	6.93	8.80	10.98	13.53	15.40	500yr	11.97	14.81	16.57	20.05	20.73	500yr

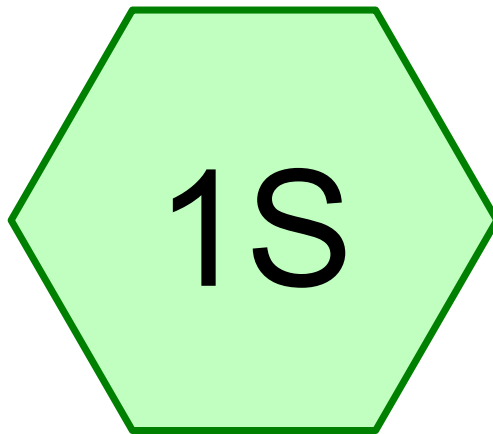
Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.25	0.38	0.46	0.62	0.76	0.85	1yr	0.66	0.83	1.15	1.44	1.78	2.45	2.51	1yr	2.17	2.42	2.94	3.53	4.09	1yr
2yr	0.33	0.51	0.63	0.85	1.05	1.26	2yr	0.91	1.23	1.45	1.92	2.48	3.13	3.47	2yr	2.77	3.34	3.82	4.54	5.19	2yr
5yr	0.39	0.60	0.75	1.03	1.31	1.51	5yr	1.13	1.48	1.73	2.25	2.89	3.78	4.19	5yr	3.34	4.03	4.59	5.48	6.17	5yr
10yr	0.44	0.67	0.83	1.16	1.50	1.73	10yr	1.30	1.69	1.95	2.53	3.25	4.36	4.84	10yr	3.86	4.65	5.27	6.30	7.01	10yr
25yr	0.51	0.77	0.96	1.37	1.80	2.05	25yr	1.55	2.01	2.31	2.97	3.79	5.24	5.83	25yr	4.64	5.61	6.32	7.54	8.28	25yr
50yr	0.56	0.85	1.06	1.53	2.06	2.36	50yr	1.78	2.30	2.62	3.35	4.25	6.01	6.71	50yr	5.32	6.45	7.23	8.63	9.38	50yr
100yr	0.63	0.95	1.19	1.72	2.36	2.68	100yr	2.04	2.62	2.97	3.62	4.78	6.92	7.71	100yr	6.13	7.41	8.28	9.83	10.63	100yr
200yr	0.71	1.06	1.35	1.95	2.72	3.07	200yr	2.35	3.00	3.37	4.04	5.39	7.95	8.86	200yr	7.04	8.52	9.47	11.18	12.01	200yr
500yr	0.83	1.23	1.59	2.31	3.28	3.66	500yr	2.83	3.58	3.97	4.69	6.31	9.56	10.63	500yr	8.46	10.22	11.31	13.21	14.07	500yr

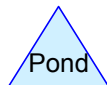
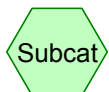
Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.31	0.48	0.58	0.79	0.97	1.13	1yr	0.83	1.11	1.33	1.77	2.26	2.86	3.17	1yr	2.53	3.05	3.51	4.28	5.03	1yr
2yr	0.36	0.56	0.69	0.94	1.16	1.36	2yr	1.00	1.33	1.57	2.08	2.69	3.35	3.74	2yr	2.97	3.59	4.11	4.88	5.55	2yr
5yr	0.45	0.70	0.87	1.19	1.51	1.79	5yr	1.30	1.75	2.06	2.66	3.39	4.43	4.99	5yr	3.92	4.80	5.42	6.48	7.21	5yr
10yr	0.55	0.84	1.05	1.46	1.89	2.21	10yr	1.63	2.16	2.56	3.23	4.07	5.50	6.24	10yr	4.87	6.00	6.71	8.04	8.82	10yr
25yr	0.71	1.09	1.35	1.93	2.54	2.91	25yr	2.19	2.84	3.41	4.17	5.19	7.30	8.41	25yr	6.46	8.08	8.89	10.74	11.54	25yr
50yr	0.86	1.32	1.64	2.35	3.17	3.60	50yr	2.74	3.52	4.22	5.06	6.24	9.05	10.53	50yr	8.01	10.12	11.00	13.40	14.15	50yr
100yr	1.06	1.60	2.00	2.89	3.97	4.44	100yr	3.42	4.34	5.25	6.40	7.49	11.24	13.21	100yr	9.95	12.70	13.62	16.74	17.39	100yr
200yr	1.29	1.94	2.46	3.56	4.96	5.48	200yr	4.28	5.36	6.52	7.82	8.99	13.96	16.58	200yr	12.36	15.94	16.89	20.93	21.40	200yr
500yr	1.68	2.50	3.22	4.67	6.64	7.23	500yr	5.73	7.07	8.71	10.21	11.46	18.61	22.42	500yr	16.47	21.56	22.44	28.19	28.21	500yr

Existing Conditions
2, 10, 25 and 100 Year Storm Events



Existing Conditions



Drainage Diagram for [1120] Existing Conditions2
Prepared by Gala Simon Associates 3/24/2020
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[1120] Existing Conditions2

Type III 24-hr 2-year Storm Event Rainfall=3.23"

Prepared by Gala Simon Associates

Page 1

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3/24/2020

Subcatchment 1S: Existing Conditions

Runoff = 0.20 cfs @ 12.10 hrs, Volume= 0.014 af, Depth> 0.86"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

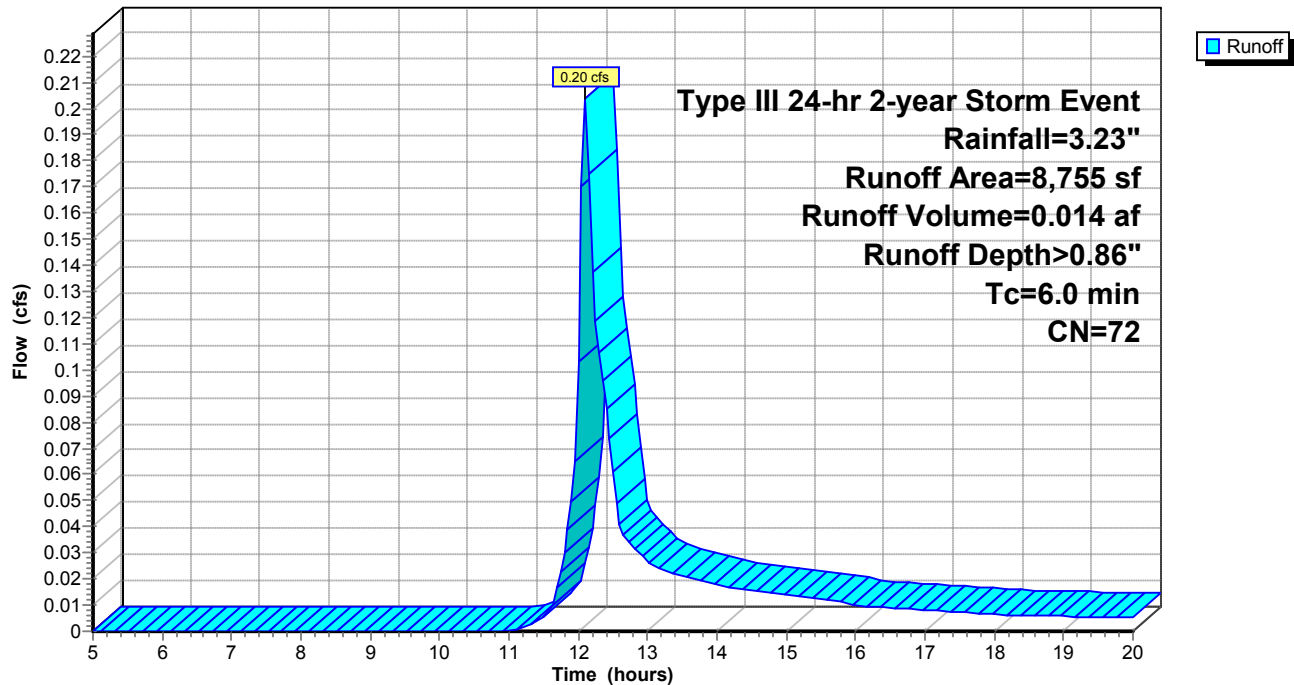
Type III 24-hr 2-year Storm Event Rainfall=3.23"

Area (sf)	CN	Description
1,641	98	Paved parking & roofs
5,271	61	>75% Grass cover, Good, HSG B
1,843	82	Dirt roads, HSG B
8,755	72	Weighted Average
7,114		Pervious Area
1,641		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 1S: Existing Conditions

Hydrograph



[1120] Existing Conditions2

Type III 24-hr 2-year Storm Event Rainfall=3.23"

Prepared by Gala Simon Associates

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Hydrograph for Subcatchment 1S: Existing Conditions

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.18	0.00	0.00	18.00	3.00	0.81	0.01
5.25	0.20	0.00	0.00	18.25	3.01	0.81	0.01
5.50	0.21	0.00	0.00	18.50	3.02	0.82	0.01
5.75	0.22	0.00	0.00	18.75	3.03	0.83	0.01
6.00	0.23	0.00	0.00	19.00	3.05	0.84	0.01
6.25	0.25	0.00	0.00	19.25	3.06	0.84	0.01
6.50	0.26	0.00	0.00	19.50	3.07	0.85	0.01
6.75	0.28	0.00	0.00	19.75	3.08	0.86	0.01
7.00	0.29	0.00	0.00	20.00	3.09	0.86	0.01
7.25	0.31	0.00	0.00				
7.50	0.33	0.00	0.00				
7.75	0.35	0.00	0.00				
8.00	0.37	0.00	0.00				
8.25	0.39	0.00	0.00				
8.50	0.41	0.00	0.00				
8.75	0.44	0.00	0.00				
9.00	0.47	0.00	0.00				
9.25	0.50	0.00	0.00				
9.50	0.54	0.00	0.00				
9.75	0.57	0.00	0.00				
10.00	0.61	0.00	0.00				
10.25	0.65	0.00	0.00				
10.50	0.70	0.00	0.00				
10.75	0.75	0.00	0.00				
11.00	0.81	0.00	0.00				
11.25	0.88	0.00	0.00				
11.50	0.96	0.01	0.01				
11.75	1.15	0.03	0.02				
12.00	1.61	0.15	0.10				
12.25	2.08	0.33	0.12				
12.50	2.27	0.41	0.06				
12.75	2.35	0.45	0.03				
13.00	2.42	0.49	0.03				
13.25	2.48	0.52	0.02				
13.50	2.53	0.54	0.02				
13.75	2.58	0.57	0.02				
14.00	2.62	0.59	0.02				
14.25	2.66	0.61	0.02				
14.50	2.69	0.63	0.02				
14.75	2.73	0.65	0.02				
15.00	2.76	0.67	0.01				
15.25	2.79	0.69	0.01				
15.50	2.82	0.70	0.01				
15.75	2.84	0.71	0.01				
16.00	2.86	0.73	0.01				
16.25	2.88	0.74	0.01				
16.50	2.90	0.75	0.01				
16.75	2.92	0.76	0.01				
17.00	2.94	0.77	0.01				
17.25	2.95	0.78	0.01				
17.50	2.97	0.79	0.01				
17.75	2.98	0.80	0.01				

[1120] Existing Conditions2

Type III 24-hr 10-year Storm Event Rainfall=4.90"

Prepared by Gala Simon Associates

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3/24/2020

Subcatchment 1S: Existing Conditions

Runoff = 0.49 cfs @ 12.10 hrs, Volume= 0.033 af, Depth> 1.96"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

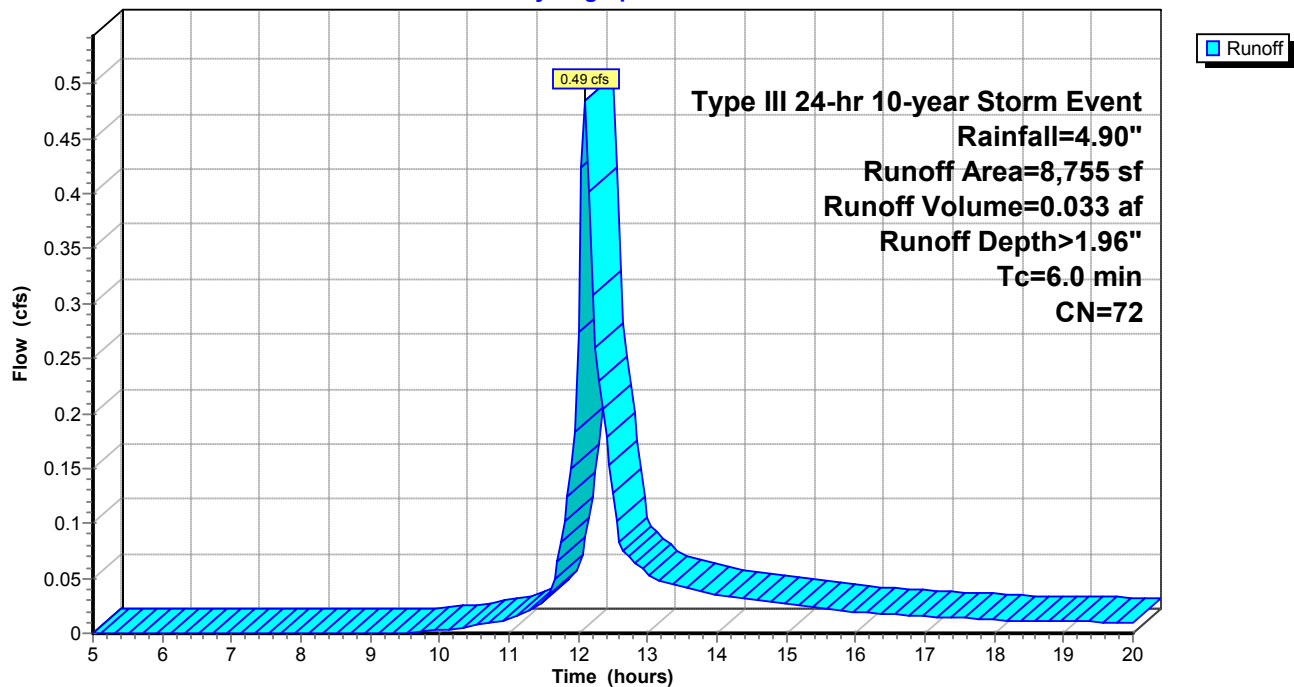
Type III 24-hr 10-year Storm Event Rainfall=4.90"

Area (sf)	CN	Description
1,641	98	Paved parking & roofs
5,271	61	>75% Grass cover, Good, HSG B
1,843	82	Dirt roads, HSG B
8,755	72	Weighted Average
7,114		Pervious Area
1,641		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 1S: Existing Conditions

Hydrograph



[1120] Existing Conditions2

Type III 24-hr 10-year Storm Event Rainfall=4.90"

Prepared by Gala Simon Associates

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3/24/2020

Hydrograph for Subcatchment 1S: Existing Conditions

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.28	0.00	0.00	18.00	4.55	1.86	0.01
5.25	0.30	0.00	0.00	18.25	4.57	1.87	0.01
5.50	0.31	0.00	0.00	18.50	4.59	1.88	0.01
5.75	0.33	0.00	0.00	18.75	4.60	1.90	0.01
6.00	0.35	0.00	0.00	19.00	4.62	1.91	0.01
6.25	0.37	0.00	0.00	19.25	4.64	1.92	0.01
6.50	0.40	0.00	0.00	19.50	4.66	1.94	0.01
6.75	0.42	0.00	0.00	19.75	4.67	1.95	0.01
7.00	0.44	0.00	0.00	20.00	4.69	1.96	0.01
7.25	0.47	0.00	0.00				
7.50	0.50	0.00	0.00				
7.75	0.53	0.00	0.00				
8.00	0.56	0.00	0.00				
8.25	0.59	0.00	0.00				
8.50	0.63	0.00	0.00				
8.75	0.67	0.00	0.00				
9.00	0.71	0.00	0.00				
9.25	0.76	0.00	0.00				
9.50	0.81	0.00	0.00				
9.75	0.87	0.00	0.00				
10.00	0.93	0.01	0.00				
10.25	0.99	0.01	0.00				
10.50	1.06	0.02	0.01				
10.75	1.14	0.03	0.01				
11.00	1.22	0.05	0.01				
11.25	1.33	0.07	0.02				
11.50	1.46	0.10	0.03				
11.75	1.74	0.19	0.08				
12.00	2.45	0.50	0.27				
12.25	3.16	0.90	0.26				
12.50	3.44	1.08	0.13				
12.75	3.57	1.17	0.07				
13.00	3.67	1.24	0.05				
13.25	3.76	1.29	0.05				
13.50	3.84	1.35	0.04				
13.75	3.91	1.40	0.04				
14.00	3.97	1.44	0.04				
14.25	4.03	1.48	0.03				
14.50	4.09	1.52	0.03				
14.75	4.14	1.56	0.03				
15.00	4.19	1.59	0.03				
15.25	4.23	1.62	0.03				
15.50	4.27	1.65	0.02				
15.75	4.31	1.68	0.02				
16.00	4.34	1.70	0.02				
16.25	4.37	1.73	0.02				
16.50	4.40	1.75	0.02				
16.75	4.43	1.77	0.02				
17.00	4.46	1.79	0.02				
17.25	4.48	1.81	0.01				
17.50	4.50	1.82	0.01				
17.75	4.53	1.84	0.01				

[1120] Existing Conditions2

Type III 24-hr 25-year Storm Event Rainfall=6.20"

Prepared by Gala Simon Associates

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3/24/2020

Subcatchment 1S: Existing Conditions

Runoff = 0.73 cfs @ 12.09 hrs, Volume= 0.049 af, Depth> 2.93"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

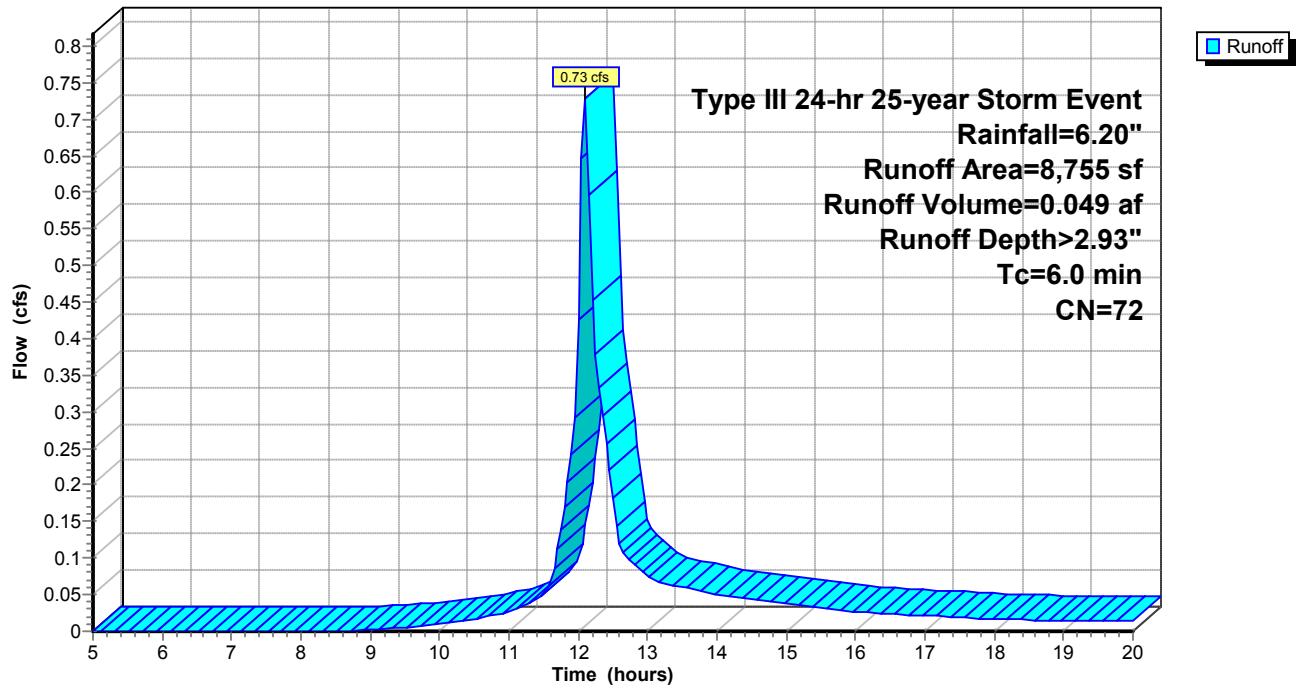
Type III 24-hr 25-year Storm Event Rainfall=6.20"

Area (sf)	CN	Description
1,641	98	Paved parking & roofs
5,271	61	>75% Grass cover, Good, HSG B
1,843	82	Dirt roads, HSG B
8,755	72	Weighted Average
7,114		Pervious Area
1,641		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 1S: Existing Conditions

Hydrograph



[1120] Existing Conditions2

Type III 24-hr 25-year Storm Event Rainfall=6.20"

Prepared by Gala Simon Associates

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3/24/2020

Hydrograph for Subcatchment 1S: Existing Conditions

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.35	0.00	0.00	18.00	5.75	2.79	0.02
5.25	0.37	0.00	0.00	18.25	5.78	2.81	0.02
5.50	0.40	0.00	0.00	18.50	5.80	2.83	0.02
5.75	0.42	0.00	0.00	18.75	5.83	2.85	0.02
6.00	0.45	0.00	0.00	19.00	5.85	2.87	0.01
6.25	0.47	0.00	0.00	19.25	5.87	2.89	0.01
6.50	0.50	0.00	0.00	19.50	5.89	2.91	0.01
6.75	0.53	0.00	0.00	19.75	5.91	2.92	0.01
7.00	0.56	0.00	0.00	20.00	5.93	2.94	0.01
7.25	0.59	0.00	0.00				
7.50	0.63	0.00	0.00				
7.75	0.67	0.00	0.00				
8.00	0.71	0.00	0.00				
8.25	0.75	0.00	0.00				
8.50	0.80	0.00	0.00				
8.75	0.85	0.00	0.00				
9.00	0.90	0.00	0.00				
9.25	0.96	0.01	0.00				
9.50	1.03	0.02	0.01				
9.75	1.10	0.02	0.01				
10.00	1.17	0.04	0.01				
10.25	1.25	0.05	0.01				
10.50	1.34	0.07	0.02				
10.75	1.44	0.10	0.02				
11.00	1.55	0.13	0.03				
11.25	1.68	0.17	0.04				
11.50	1.85	0.23	0.05				
11.75	2.20	0.38	0.14				
12.00	3.10	0.87	0.43				
12.25	4.00	1.46	0.38				
12.50	4.35	1.71	0.18				
12.75	4.52	1.83	0.10				
13.00	4.65	1.93	0.08				
13.25	4.76	2.01	0.07				
13.50	4.86	2.09	0.06				
13.75	4.95	2.16	0.06				
14.00	5.03	2.22	0.05				
14.25	5.10	2.28	0.05				
14.50	5.17	2.33	0.04				
14.75	5.24	2.38	0.04				
15.00	5.30	2.43	0.04				
15.25	5.35	2.47	0.04				
15.50	5.40	2.51	0.03				
15.75	5.45	2.55	0.03				
16.00	5.49	2.58	0.03				
16.25	5.53	2.62	0.03				
16.50	5.57	2.65	0.02				
16.75	5.61	2.67	0.02				
17.00	5.64	2.70	0.02				
17.25	5.67	2.73	0.02				
17.50	5.70	2.75	0.02				
17.75	5.73	2.77	0.02				

[1120] Existing Conditions2

Type III 24-hr 100-year Storm Event Rainfall=8.89"

Prepared by Gala Simon Associates

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Subcatchment 1S: Existing Conditions

Runoff = 1.26 cfs @ 12.09 hrs, Volume= 0.086 af, Depth> 5.14"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

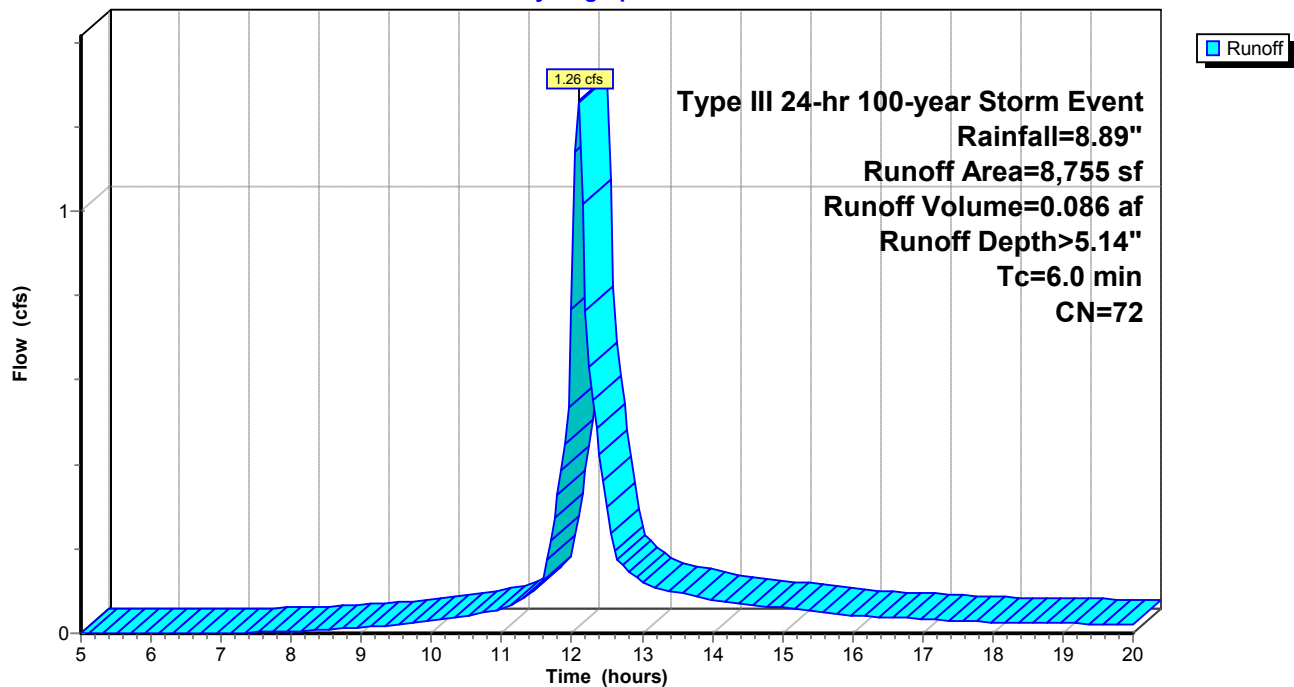
Type III 24-hr 100-year Storm Event Rainfall=8.89"

Area (sf)	CN	Description
1,641	98	Paved parking & roofs
5,271	61	>75% Grass cover, Good, HSG B
1,843	82	Dirt roads, HSG B
8,755	72	Weighted Average
7,114		Pervious Area
1,641		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 1S: Existing Conditions

Hydrograph



[1120] Existing Conditions2

Type III 24-hr 100-year Storm Event Rainfall=8.89"

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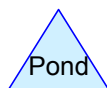
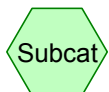
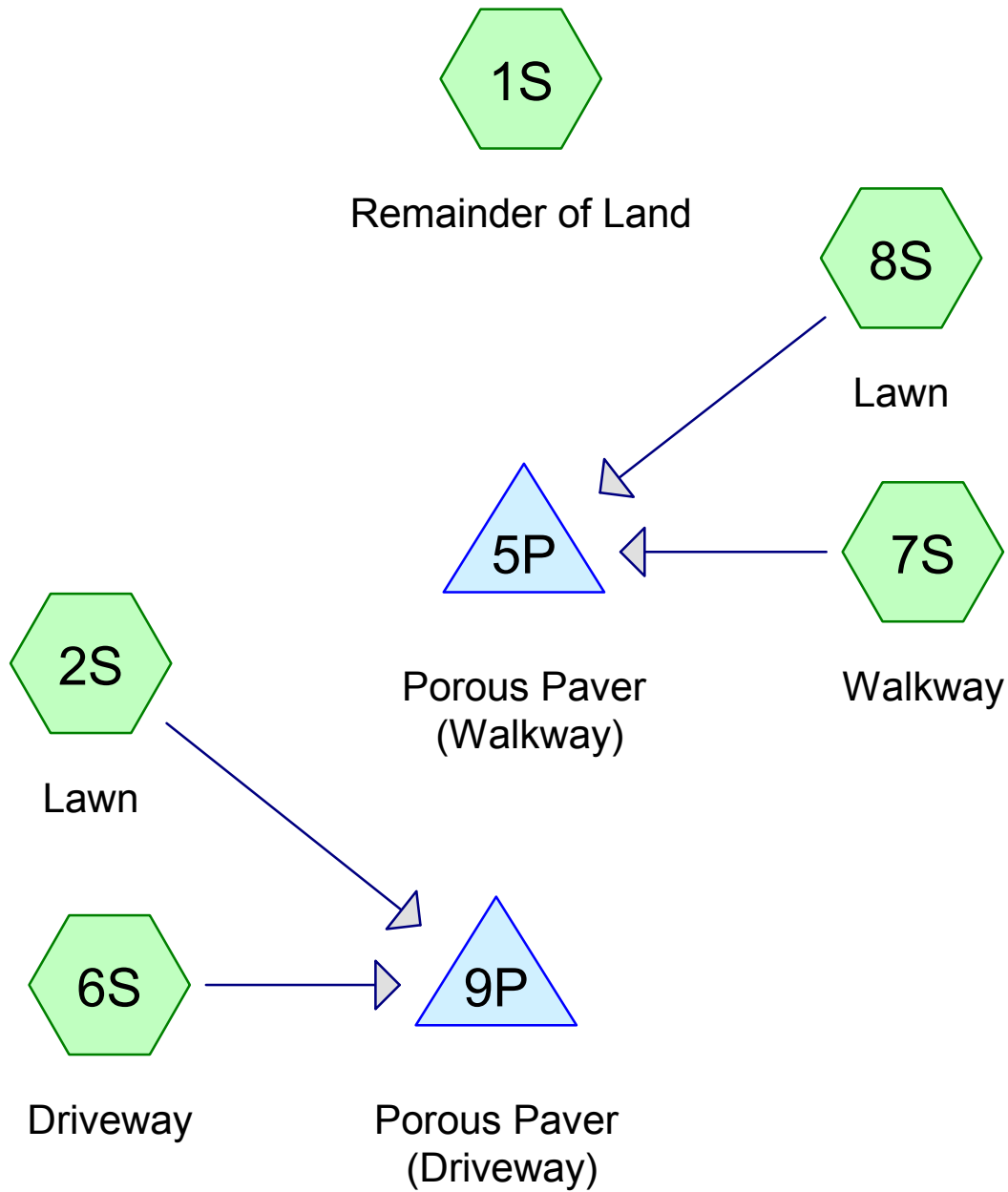
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Hydrograph for Subcatchment 1S: Existing Conditions

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.50	0.00	0.00	18.00	8.25	4.91	0.03
5.25	0.54	0.00	0.00	18.25	8.29	4.95	0.03
5.50	0.57	0.00	0.00	18.50	8.32	4.98	0.02
5.75	0.60	0.00	0.00	18.75	8.35	5.01	0.02
6.00	0.64	0.00	0.00	19.00	8.39	5.03	0.02
6.25	0.68	0.00	0.00	19.25	8.42	5.06	0.02
6.50	0.72	0.00	0.00	19.50	8.45	5.09	0.02
6.75	0.76	0.00	0.00	19.75	8.48	5.12	0.02
7.00	0.80	0.00	0.00	20.00	8.51	5.14	0.02
7.25	0.85	0.00	0.00				
7.50	0.90	0.00	0.00				
7.75	0.96	0.01	0.00				
8.00	1.01	0.01	0.00				
8.25	1.07	0.02	0.01				
8.50	1.14	0.03	0.01				
8.75	1.22	0.04	0.01				
9.00	1.30	0.06	0.01				
9.25	1.38	0.08	0.02				
9.50	1.48	0.11	0.02				
9.75	1.57	0.14	0.02				
10.00	1.68	0.17	0.03				
10.25	1.80	0.21	0.03				
10.50	1.92	0.26	0.04				
10.75	2.07	0.32	0.05				
11.00	2.22	0.39	0.06				
11.25	2.41	0.48	0.08				
11.50	2.65	0.61	0.11				
11.75	3.16	0.90	0.27				
12.00	4.44	1.78	0.77				
12.25	5.73	2.78	0.63				
12.50	6.24	3.19	0.30				
12.75	6.48	3.39	0.16				
13.00	6.67	3.55	0.12				
13.25	6.82	3.68	0.11				
13.50	6.97	3.80	0.10				
13.75	7.09	3.91	0.09				
14.00	7.21	4.01	0.08				
14.25	7.32	4.10	0.07				
14.50	7.41	4.18	0.07				
14.75	7.51	4.27	0.06				
15.00	7.59	4.34	0.06				
15.25	7.67	4.41	0.06				
15.50	7.75	4.47	0.05				
15.75	7.82	4.53	0.05				
16.00	7.88	4.59	0.04				
16.25	7.93	4.64	0.04				
16.50	7.99	4.68	0.04				
16.75	8.04	4.73	0.04				
17.00	8.09	4.77	0.03				
17.25	8.13	4.81	0.03				
17.50	8.17	4.85	0.03				
17.75	8.21	4.88	0.03				

***Proposed Conditions
2, 10, 25 and 100 Year Storm Events***



Drainage Diagram for [1120] Proposed Conditions2
 Prepared by Gala Simon Associates 3/26/2020
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[1120] Proposed Conditions2

Type III 24-hr 2-year Storm Event Rainfall=3.23"

Prepared by Gala Simon Associates

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Subcatchment 1S: Remainder of Land

Runoff = 0.20 cfs @ 12.10 hrs, Volume= 0.014 af, Depth> 0.91"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

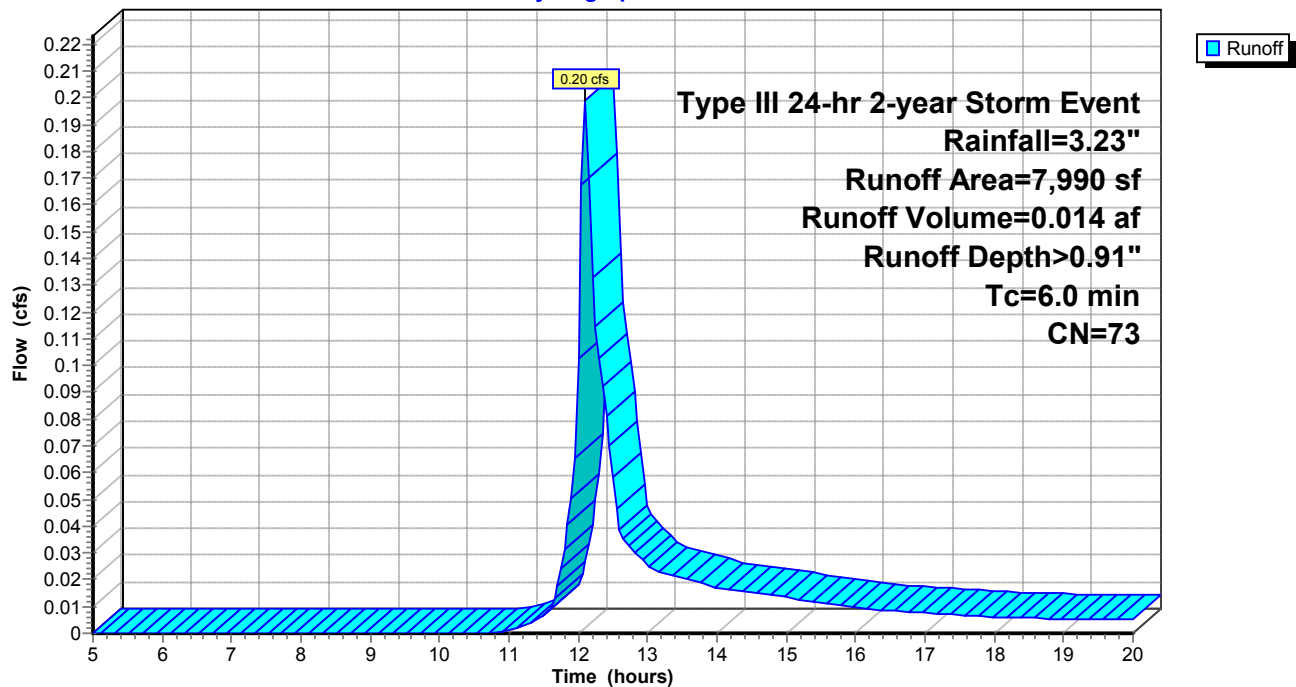
Type III 24-hr 2-year Storm Event Rainfall=3.23"

Area (sf)	CN	Description
1,441	98	Paved parking & roofs
4,706	61	>75% Grass cover, Good, HSG B
1,843	82	Dirt roads, HSG B
7,990	73	Weighted Average
6,549		Pervious Area
1,441		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 1S: Remainder of Land

Hydrograph



[1120] Proposed Conditions2

Type III 24-hr 2-year Storm Event Rainfall=3.23"

Prepared by Gala Simon Associates

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Hydrograph for Subcatchment 1S: Remainder of Land

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.18	0.00	0.00	18.00	3.00	0.86	0.01
5.25	0.20	0.00	0.00	18.25	3.01	0.86	0.01
5.50	0.21	0.00	0.00	18.50	3.02	0.87	0.01
5.75	0.22	0.00	0.00	18.75	3.03	0.88	0.01
6.00	0.23	0.00	0.00	19.00	3.05	0.89	0.01
6.25	0.25	0.00	0.00	19.25	3.06	0.89	0.01
6.50	0.26	0.00	0.00	19.50	3.07	0.90	0.01
6.75	0.28	0.00	0.00	19.75	3.08	0.91	0.01
7.00	0.29	0.00	0.00	20.00	3.09	0.91	0.00
7.25	0.31	0.00	0.00				
7.50	0.33	0.00	0.00				
7.75	0.35	0.00	0.00				
8.00	0.37	0.00	0.00				
8.25	0.39	0.00	0.00				
8.50	0.41	0.00	0.00				
8.75	0.44	0.00	0.00				
9.00	0.47	0.00	0.00				
9.25	0.50	0.00	0.00				
9.50	0.54	0.00	0.00				
9.75	0.57	0.00	0.00				
10.00	0.61	0.00	0.00				
10.25	0.65	0.00	0.00				
10.50	0.70	0.00	0.00				
10.75	0.75	0.00	0.00				
11.00	0.81	0.00	0.00				
11.25	0.88	0.00	0.00				
11.50	0.96	0.01	0.01				
11.75	1.15	0.04	0.02				
12.00	1.61	0.17	0.10				
12.25	2.08	0.36	0.11				
12.50	2.27	0.45	0.06				
12.75	2.35	0.49	0.03				
13.00	2.42	0.53	0.03				
13.25	2.48	0.56	0.02				
13.50	2.53	0.58	0.02				
13.75	2.58	0.61	0.02				
14.00	2.62	0.63	0.02				
14.25	2.66	0.66	0.02				
14.50	2.69	0.68	0.02				
14.75	2.73	0.70	0.01				
15.00	2.76	0.71	0.01				
15.25	2.79	0.73	0.01				
15.50	2.82	0.75	0.01				
15.75	2.84	0.76	0.01				
16.00	2.86	0.77	0.01				
16.25	2.88	0.79	0.01				
16.50	2.90	0.80	0.01				
16.75	2.92	0.81	0.01				
17.00	2.94	0.82	0.01				
17.25	2.95	0.83	0.01				
17.50	2.97	0.84	0.01				
17.75	2.98	0.85	0.01				

[1120] Proposed Conditions2

Type III 24-hr 2-year Storm Event Rainfall=3.23"

Prepared by Gala Simon Associates

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Subcatchment 2S: Lawn

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

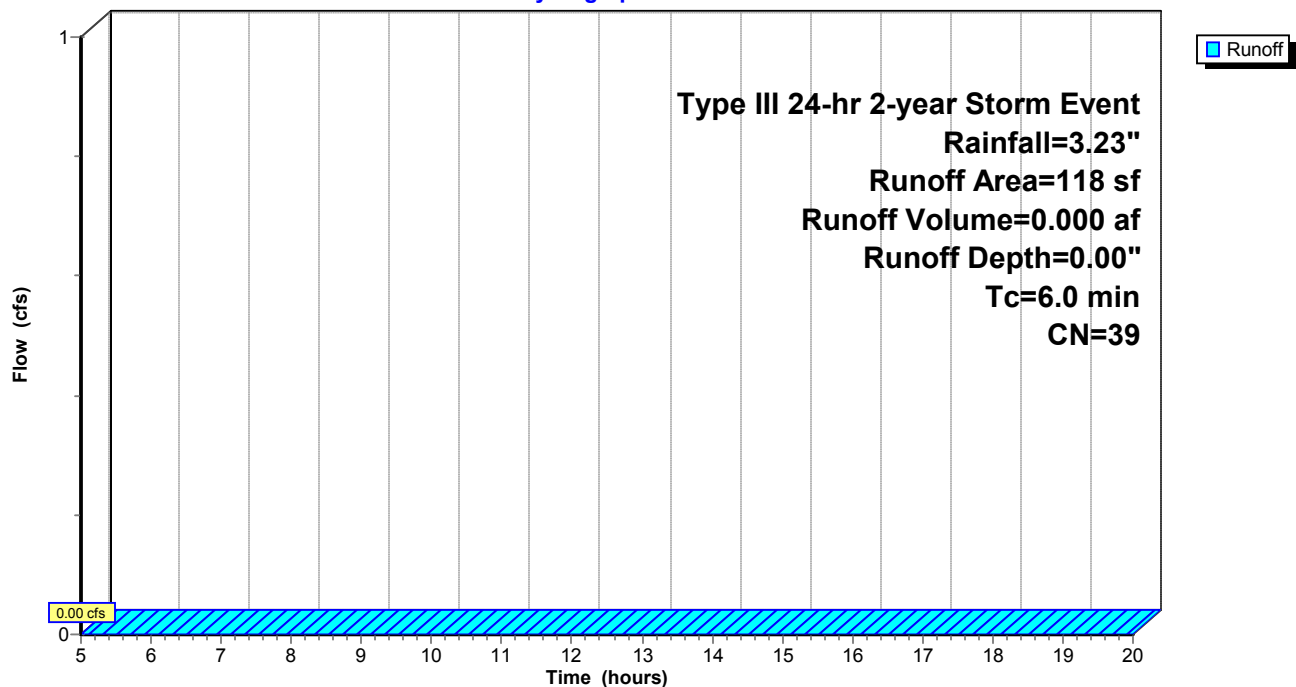
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Storm Event Rainfall=3.23"

Area (sf)	CN	Description
118	39	>75% Grass cover, Good, HSG A
118		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 2S: Lawn

Hydrograph



[1120] Proposed Conditions2

Type III 24-hr 2-year Storm Event Rainfall=3.23"

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Hydrograph for Subcatchment 2S: Lawn

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.18	0.00	0.00	18.00	3.00	0.00	0.00
5.25	0.20	0.00	0.00	18.25	3.01	0.00	0.00
5.50	0.21	0.00	0.00	18.50	3.02	0.00	0.00
5.75	0.22	0.00	0.00	18.75	3.03	0.00	0.00
6.00	0.23	0.00	0.00	19.00	3.05	0.00	0.00
6.25	0.25	0.00	0.00	19.25	3.06	0.00	0.00
6.50	0.26	0.00	0.00	19.50	3.07	0.00	0.00
6.75	0.28	0.00	0.00	19.75	3.08	0.00	0.00
7.00	0.29	0.00	0.00	20.00	3.09	0.00	0.00
7.25	0.31	0.00	0.00				
7.50	0.33	0.00	0.00				
7.75	0.35	0.00	0.00				
8.00	0.37	0.00	0.00				
8.25	0.39	0.00	0.00				
8.50	0.41	0.00	0.00				
8.75	0.44	0.00	0.00				
9.00	0.47	0.00	0.00				
9.25	0.50	0.00	0.00				
9.50	0.54	0.00	0.00				
9.75	0.57	0.00	0.00				
10.00	0.61	0.00	0.00				
10.25	0.65	0.00	0.00				
10.50	0.70	0.00	0.00				
10.75	0.75	0.00	0.00				
11.00	0.81	0.00	0.00				
11.25	0.88	0.00	0.00				
11.50	0.96	0.00	0.00				
11.75	1.15	0.00	0.00				
12.00	1.61	0.00	0.00				
12.25	2.08	0.00	0.00				
12.50	2.27	0.00	0.00				
12.75	2.35	0.00	0.00				
13.00	2.42	0.00	0.00				
13.25	2.48	0.00	0.00				
13.50	2.53	0.00	0.00				
13.75	2.58	0.00	0.00				
14.00	2.62	0.00	0.00				
14.25	2.66	0.00	0.00				
14.50	2.69	0.00	0.00				
14.75	2.73	0.00	0.00				
15.00	2.76	0.00	0.00				
15.25	2.79	0.00	0.00				
15.50	2.82	0.00	0.00				
15.75	2.84	0.00	0.00				
16.00	2.86	0.00	0.00				
16.25	2.88	0.00	0.00				
16.50	2.90	0.00	0.00				
16.75	2.92	0.00	0.00				
17.00	2.94	0.00	0.00				
17.25	2.95	0.00	0.00				
17.50	2.97	0.00	0.00				
17.75	2.98	0.00	0.00				

[1120] Proposed Conditions2

Type III 24-hr 2-year Storm Event Rainfall=3.23"

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Subcatchment 6S: Driveway

Runoff = 0.03 cfs @ 12.09 hrs, Volume= 0.002 af, Depth> 2.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

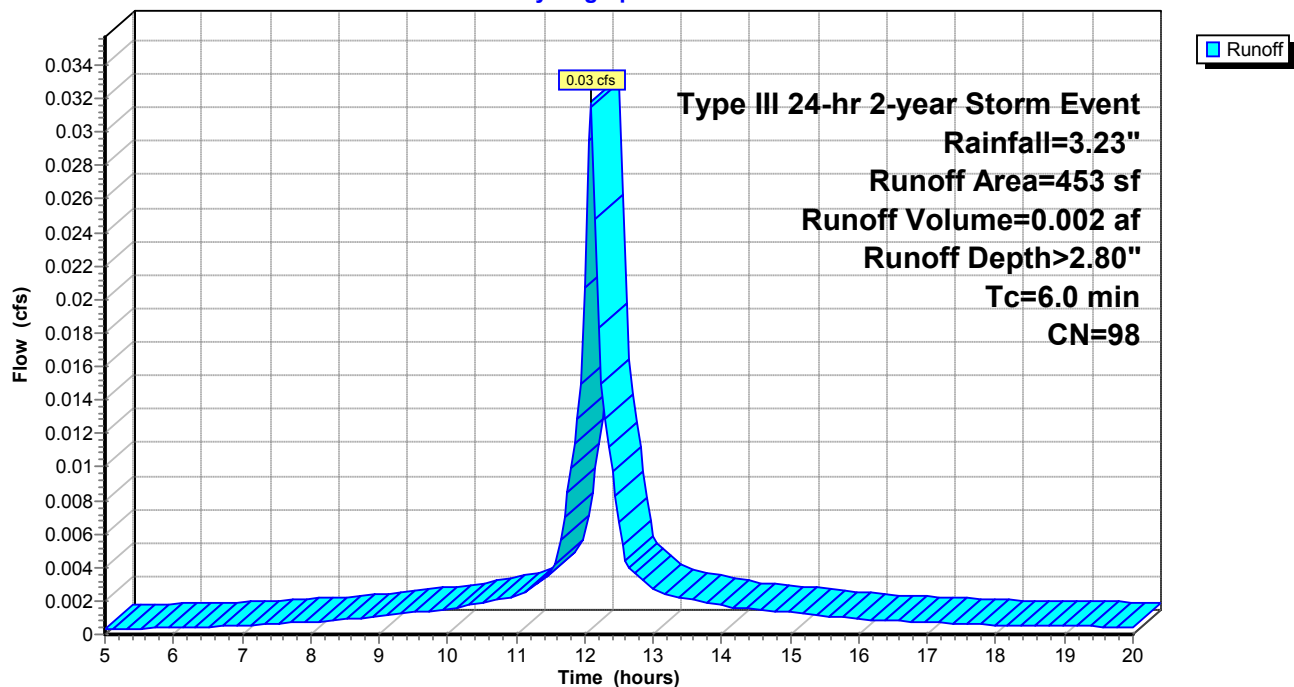
Type III 24-hr 2-year Storm Event Rainfall=3.23"

Area (sf)	CN	Description
453	98	Paved parking & roofs
453		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 6S: Driveway

Hydrograph



[1120] Proposed Conditions2

Type III 24-hr 2-year Storm Event Rainfall=3.23"

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Hydrograph for Subcatchment 6S: Driveway

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.18	0.06	0.00	18.00	3.00	2.77	0.00
5.25	0.20	0.07	0.00	18.25	3.01	2.78	0.00
5.50	0.21	0.07	0.00	18.50	3.02	2.79	0.00
5.75	0.22	0.08	0.00	18.75	3.03	2.80	0.00
6.00	0.23	0.09	0.00	19.00	3.05	2.81	0.00
6.25	0.25	0.10	0.00	19.25	3.06	2.83	0.00
6.50	0.26	0.11	0.00	19.50	3.07	2.84	0.00
6.75	0.28	0.13	0.00	19.75	3.08	2.85	0.00
7.00	0.29	0.14	0.00	20.00	3.09	2.86	0.00
7.25	0.31	0.15	0.00				
7.50	0.33	0.17	0.00				
7.75	0.35	0.18	0.00				
8.00	0.37	0.20	0.00				
8.25	0.39	0.22	0.00				
8.50	0.41	0.24	0.00				
8.75	0.44	0.27	0.00				
9.00	0.47	0.29	0.00				
9.25	0.50	0.32	0.00				
9.50	0.54	0.35	0.00				
9.75	0.57	0.38	0.00				
10.00	0.61	0.42	0.00				
10.25	0.65	0.46	0.00				
10.50	0.70	0.50	0.00				
10.75	0.75	0.55	0.00				
11.00	0.81	0.61	0.00				
11.25	0.88	0.67	0.00				
11.50	0.96	0.75	0.00				
11.75	1.15	0.93	0.01				
12.00	1.61	1.39	0.02				
12.25	2.08	1.86	0.01				
12.50	2.27	2.04	0.01				
12.75	2.35	2.13	0.00				
13.00	2.42	2.19	0.00				
13.25	2.48	2.25	0.00				
13.50	2.53	2.30	0.00				
13.75	2.58	2.35	0.00				
14.00	2.62	2.39	0.00				
14.25	2.66	2.43	0.00				
14.50	2.69	2.46	0.00				
14.75	2.73	2.50	0.00				
15.00	2.76	2.53	0.00				
15.25	2.79	2.56	0.00				
15.50	2.82	2.58	0.00				
15.75	2.84	2.61	0.00				
16.00	2.86	2.63	0.00				
16.25	2.88	2.65	0.00				
16.50	2.90	2.67	0.00				
16.75	2.92	2.69	0.00				
17.00	2.94	2.71	0.00				
17.25	2.95	2.72	0.00				
17.50	2.97	2.74	0.00				
17.75	2.98	2.75	0.00				

[1120] Proposed Conditions2

Type III 24-hr 2-year Storm Event Rainfall=3.23"

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Subcatchment 7S: Walkway

Runoff = 0.01 cfs @ 12.09 hrs, Volume= 0.001 af, Depth> 2.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

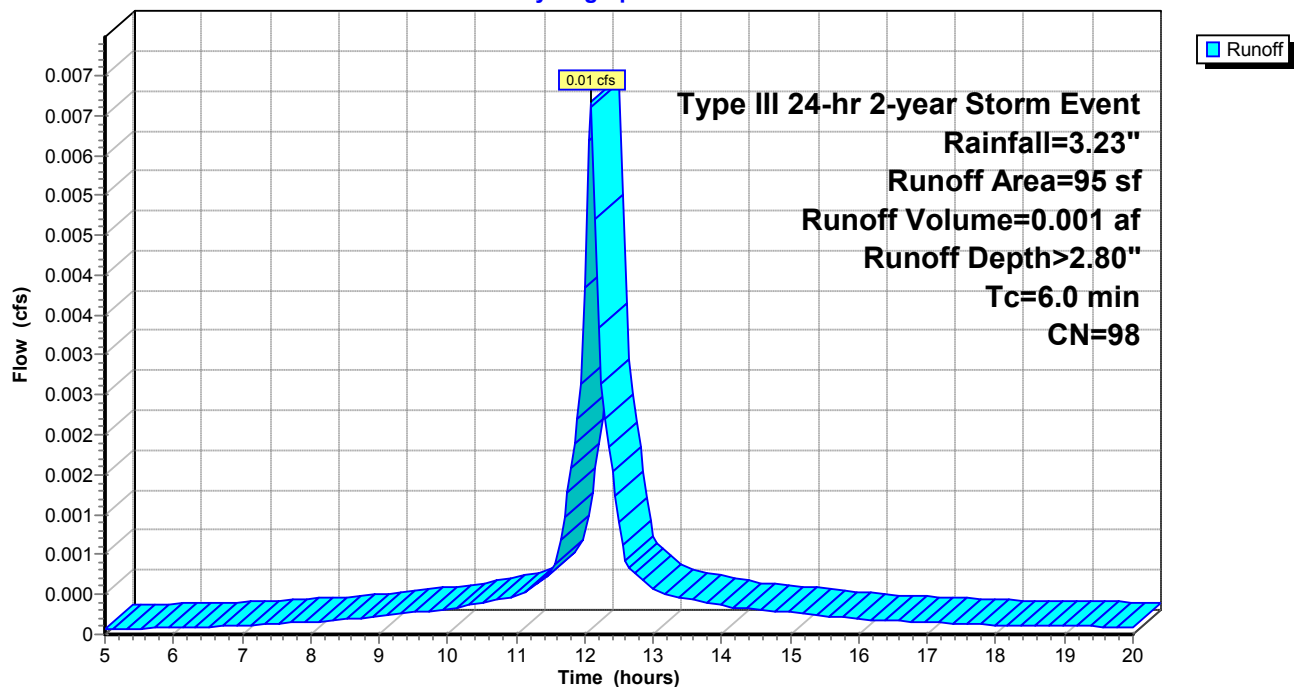
Type III 24-hr 2-year Storm Event Rainfall=3.23"

Area (sf)	CN	Description
95	98	Paved parking & roofs
95		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 7S: Walkway

Hydrograph



[1120] Proposed Conditions2

Type III 24-hr 2-year Storm Event Rainfall=3.23"

Prepared by Gala Simon Associates

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Hydrograph for Subcatchment 7S: Walkway

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.18	0.06	0.00	18.00	3.00	2.77	0.00
5.25	0.20	0.07	0.00	18.25	3.01	2.78	0.00
5.50	0.21	0.07	0.00	18.50	3.02	2.79	0.00
5.75	0.22	0.08	0.00	18.75	3.03	2.80	0.00
6.00	0.23	0.09	0.00	19.00	3.05	2.81	0.00
6.25	0.25	0.10	0.00	19.25	3.06	2.83	0.00
6.50	0.26	0.11	0.00	19.50	3.07	2.84	0.00
6.75	0.28	0.13	0.00	19.75	3.08	2.85	0.00
7.00	0.29	0.14	0.00	20.00	3.09	2.86	0.00
7.25	0.31	0.15	0.00				
7.50	0.33	0.17	0.00				
7.75	0.35	0.18	0.00				
8.00	0.37	0.20	0.00				
8.25	0.39	0.22	0.00				
8.50	0.41	0.24	0.00				
8.75	0.44	0.27	0.00				
9.00	0.47	0.29	0.00				
9.25	0.50	0.32	0.00				
9.50	0.54	0.35	0.00				
9.75	0.57	0.38	0.00				
10.00	0.61	0.42	0.00				
10.25	0.65	0.46	0.00				
10.50	0.70	0.50	0.00				
10.75	0.75	0.55	0.00				
11.00	0.81	0.61	0.00				
11.25	0.88	0.67	0.00				
11.50	0.96	0.75	0.00				
11.75	1.15	0.93	0.00				
12.00	1.61	1.39	0.00				
12.25	2.08	1.86	0.00				
12.50	2.27	2.04	0.00				
12.75	2.35	2.13	0.00				
13.00	2.42	2.19	0.00				
13.25	2.48	2.25	0.00				
13.50	2.53	2.30	0.00				
13.75	2.58	2.35	0.00				
14.00	2.62	2.39	0.00				
14.25	2.66	2.43	0.00				
14.50	2.69	2.46	0.00				
14.75	2.73	2.50	0.00				
15.00	2.76	2.53	0.00				
15.25	2.79	2.56	0.00				
15.50	2.82	2.58	0.00				
15.75	2.84	2.61	0.00				
16.00	2.86	2.63	0.00				
16.25	2.88	2.65	0.00				
16.50	2.90	2.67	0.00				
16.75	2.92	2.69	0.00				
17.00	2.94	2.71	0.00				
17.25	2.95	2.72	0.00				
17.50	2.97	2.74	0.00				
17.75	2.98	2.75	0.00				

[1120] Proposed Conditions2

Type III 24-hr 2-year Storm Event Rainfall=3.23"

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Subcatchment 8S: Lawn

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

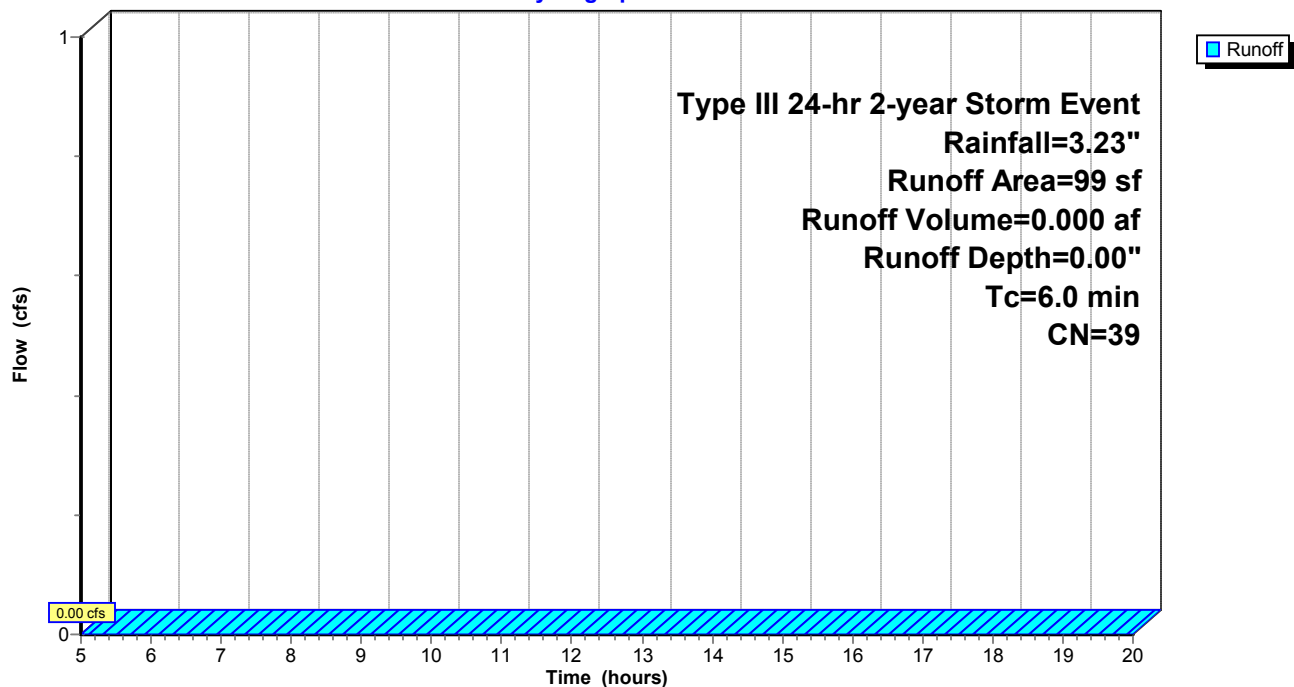
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Storm Event Rainfall=3.23"

Area (sf)	CN	Description
99	39	>75% Grass cover, Good, HSG A
99		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 8S: Lawn

Hydrograph



[1120] Proposed Conditions2

Type III 24-hr 2-year Storm Event Rainfall=3.23"

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Hydrograph for Subcatchment 8S: Lawn

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.18	0.00	0.00	18.00	3.00	0.00	0.00
5.25	0.20	0.00	0.00	18.25	3.01	0.00	0.00
5.50	0.21	0.00	0.00	18.50	3.02	0.00	0.00
5.75	0.22	0.00	0.00	18.75	3.03	0.00	0.00
6.00	0.23	0.00	0.00	19.00	3.05	0.00	0.00
6.25	0.25	0.00	0.00	19.25	3.06	0.00	0.00
6.50	0.26	0.00	0.00	19.50	3.07	0.00	0.00
6.75	0.28	0.00	0.00	19.75	3.08	0.00	0.00
7.00	0.29	0.00	0.00	20.00	3.09	0.00	0.00
7.25	0.31	0.00	0.00				
7.50	0.33	0.00	0.00				
7.75	0.35	0.00	0.00				
8.00	0.37	0.00	0.00				
8.25	0.39	0.00	0.00				
8.50	0.41	0.00	0.00				
8.75	0.44	0.00	0.00				
9.00	0.47	0.00	0.00				
9.25	0.50	0.00	0.00				
9.50	0.54	0.00	0.00				
9.75	0.57	0.00	0.00				
10.00	0.61	0.00	0.00				
10.25	0.65	0.00	0.00				
10.50	0.70	0.00	0.00				
10.75	0.75	0.00	0.00				
11.00	0.81	0.00	0.00				
11.25	0.88	0.00	0.00				
11.50	0.96	0.00	0.00				
11.75	1.15	0.00	0.00				
12.00	1.61	0.00	0.00				
12.25	2.08	0.00	0.00				
12.50	2.27	0.00	0.00				
12.75	2.35	0.00	0.00				
13.00	2.42	0.00	0.00				
13.25	2.48	0.00	0.00				
13.50	2.53	0.00	0.00				
13.75	2.58	0.00	0.00				
14.00	2.62	0.00	0.00				
14.25	2.66	0.00	0.00				
14.50	2.69	0.00	0.00				
14.75	2.73	0.00	0.00				
15.00	2.76	0.00	0.00				
15.25	2.79	0.00	0.00				
15.50	2.82	0.00	0.00				
15.75	2.84	0.00	0.00				
16.00	2.86	0.00	0.00				
16.25	2.88	0.00	0.00				
16.50	2.90	0.00	0.00				
16.75	2.92	0.00	0.00				
17.00	2.94	0.00	0.00				
17.25	2.95	0.00	0.00				
17.50	2.97	0.00	0.00				
17.75	2.98	0.00	0.00				

[1120] Proposed Conditions2

Type III 24-hr 2-year Storm Event Rainfall=3.23"

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Pond 5P: Porous Paver (Walkway)

Inflow Area = 0.004 ac, Inflow Depth > 1.37" for 2-year Storm Event event
 Inflow = 0.01 cfs @ 12.09 hrs, Volume= 0.001 af
 Outflow = 0.01 cfs @ 12.05 hrs, Volume= 0.001 af, Atten= 25%, Lag= 0.0 min
 Discarded = 0.01 cfs @ 12.05 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 3.28' @ 12.16 hrs Surf.Area= 0 sf Storage= 1 cf

Plug-Flow detention time= 1.4 min calculated for 0.001 af (100% of inflow)
 Center-of-Mass det. time= 1.1 min (739.6 - 738.5)

Volume	Invert	Avail.Storage	Storage Description
#1	3.25'	16 cf	Custom Stage Data Listed below

Elevation (feet)	Cum.Store (cubic-feet)
3.25	0
3.75	16

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	Special & User-Defined Elev. (feet) 3.25 3.26 3.75 Disch. (cfs) 0.000 0.005 0.005

Discarded OutFlow Max=0.01 cfs @ 12.05 hrs HW=3.26' (Free Discharge)
 ↑1=Special & User-Defined (Custom Controls 0.01 cfs)

[1120] Proposed Conditions2

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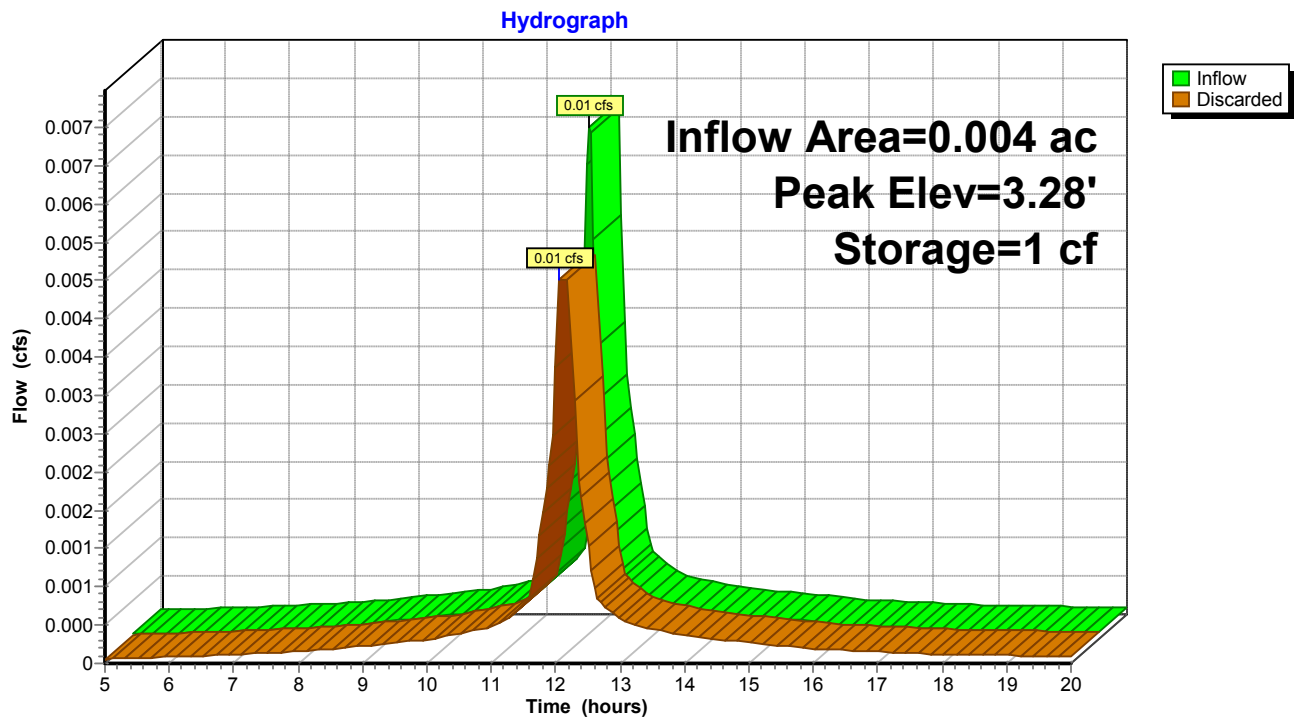
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Type III 24-hr 2-year Storm Event Rainfall=3.23"

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3/26/2020

Pond 5P: Porous Paver (Walkway)



[1120] Proposed Conditions2*Type III 24-hr 2-year Storm Event Rainfall=3.23"*

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Hydrograph for Pond 5P: Porous Paver (Walkway)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)
5.00	0.00	0	3.25	0.00
5.50	0.00	0	3.25	0.00
6.00	0.00	0	3.25	0.00
6.50	0.00	0	3.25	0.00
7.00	0.00	0	3.25	0.00
7.50	0.00	0	3.25	0.00
8.00	0.00	0	3.25	0.00
8.50	0.00	0	3.25	0.00
9.00	0.00	0	3.25	0.00
9.50	0.00	0	3.25	0.00
10.00	0.00	0	3.25	0.00
10.50	0.00	0	3.25	0.00
11.00	0.00	0	3.25	0.00
11.50	0.00	0	3.25	0.00
12.00	0.00	0	3.26	0.00
12.50	0.00	0	3.25	0.00
13.00	0.00	0	3.25	0.00
13.50	0.00	0	3.25	0.00
14.00	0.00	0	3.25	0.00
14.50	0.00	0	3.25	0.00
15.00	0.00	0	3.25	0.00
15.50	0.00	0	3.25	0.00
16.00	0.00	0	3.25	0.00
16.50	0.00	0	3.25	0.00
17.00	0.00	0	3.25	0.00
17.50	0.00	0	3.25	0.00
18.00	0.00	0	3.25	0.00
18.50	0.00	0	3.25	0.00
19.00	0.00	0	3.25	0.00
19.50	0.00	0	3.25	0.00
20.00	0.00	0	3.25	0.00

[1120] Proposed Conditions2

Type III 24-hr 2-year Storm Event Rainfall=3.23"

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Pond 9P: Porous Paver (Driveway)

Inflow Area = 0.013 ac, Inflow Depth > 2.22" for 2-year Storm Event event
 Inflow = 0.03 cfs @ 12.09 hrs, Volume= 0.002 af
 Outflow = 0.03 cfs @ 12.05 hrs, Volume= 0.002 af, Atten= 22%, Lag= 0.0 min
 Discarded = 0.03 cfs @ 12.05 hrs, Volume= 0.002 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 3.27' @ 12.15 hrs Surf.Area= 0 sf Storage= 3 cf

Plug-Flow detention time= 1.2 min calculated for 0.002 af (100% of inflow)
 Center-of-Mass det. time= 1.0 min (739.5 - 738.5)

Volume	Invert	Avail.Storage	Storage Description
#1	3.25'	75 cf	Custom Stage Data Listed below

Elevation (feet)	Cum.Store (cubic-feet)
3.25	0
3.75	75

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	Special & User-Defined Elev. (feet) 3.25 3.26 3.75 Disch. (cfs) 0.000 0.025 0.025

Discarded OutFlow Max=0.03 cfs @ 12.05 hrs HW=3.26' (Free Discharge)
 ↑1=Special & User-Defined (Custom Controls 0.03 cfs)

[1120] Proposed Conditions2

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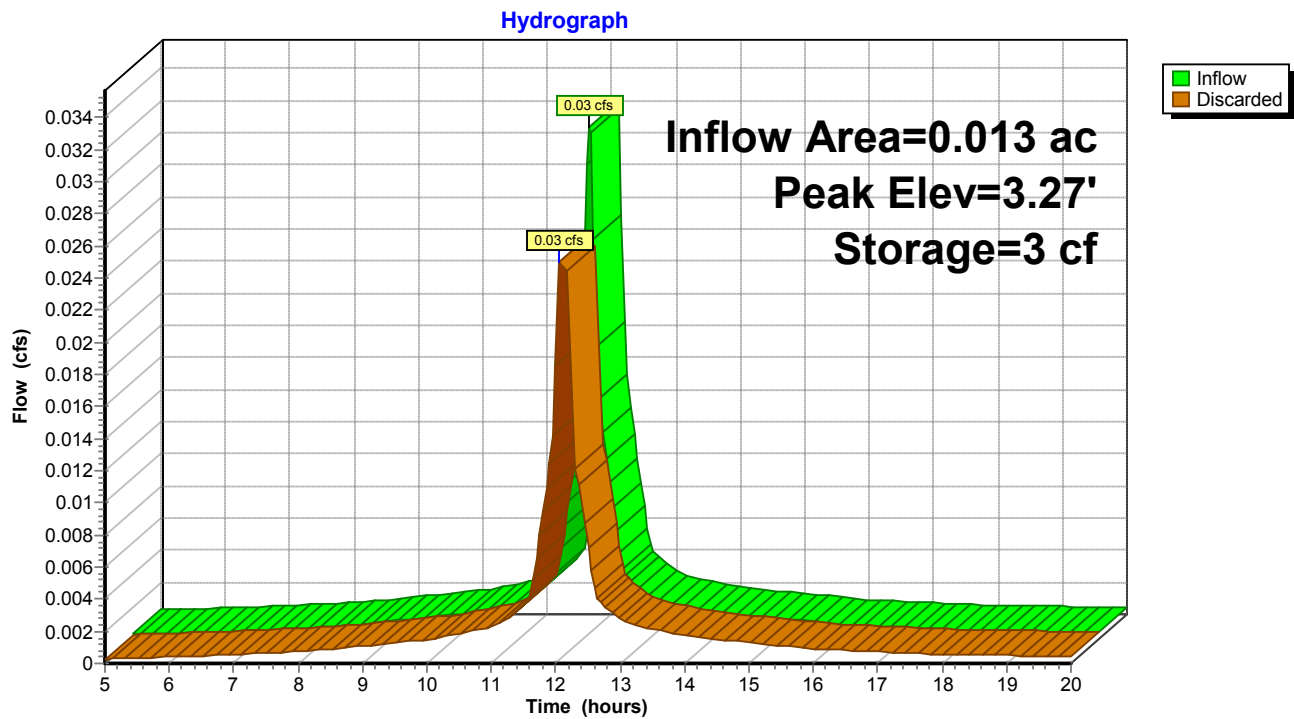
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Type III 24-hr 2-year Storm Event Rainfall=3.23"

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Pond 9P: Porous Paver (Driveway)



[1120] Proposed Conditions2*Type III 24-hr 2-year Storm Event Rainfall=3.23"*

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Hydrograph for Pond 9P: Porous Paver (Driveway)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)
5.00	0.00	0	3.25	0.00
5.50	0.00	0	3.25	0.00
6.00	0.00	0	3.25	0.00
6.50	0.00	0	3.25	0.00
7.00	0.00	0	3.25	0.00
7.50	0.00	0	3.25	0.00
8.00	0.00	0	3.25	0.00
8.50	0.00	0	3.25	0.00
9.00	0.00	0	3.25	0.00
9.50	0.00	0	3.25	0.00
10.00	0.00	0	3.25	0.00
10.50	0.00	0	3.25	0.00
11.00	0.00	0	3.25	0.00
11.50	0.00	0	3.25	0.00
12.00	0.02	1	3.26	0.02
12.50	0.01	0	3.25	0.01
13.00	0.00	0	3.25	0.00
13.50	0.00	0	3.25	0.00
14.00	0.00	0	3.25	0.00
14.50	0.00	0	3.25	0.00
15.00	0.00	0	3.25	0.00
15.50	0.00	0	3.25	0.00
16.00	0.00	0	3.25	0.00
16.50	0.00	0	3.25	0.00
17.00	0.00	0	3.25	0.00
17.50	0.00	0	3.25	0.00
18.00	0.00	0	3.25	0.00
18.50	0.00	0	3.25	0.00
19.00	0.00	0	3.25	0.00
19.50	0.00	0	3.25	0.00
20.00	0.00	0	3.25	0.00

[1120] Proposed Conditions2

Type III 24-hr 10-year Storm Event Rainfall=4.90"

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Subcatchment 1S: Remainder of Land

Runoff = 0.46 cfs @ 12.10 hrs, Volume= 0.031 af, Depth> 2.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

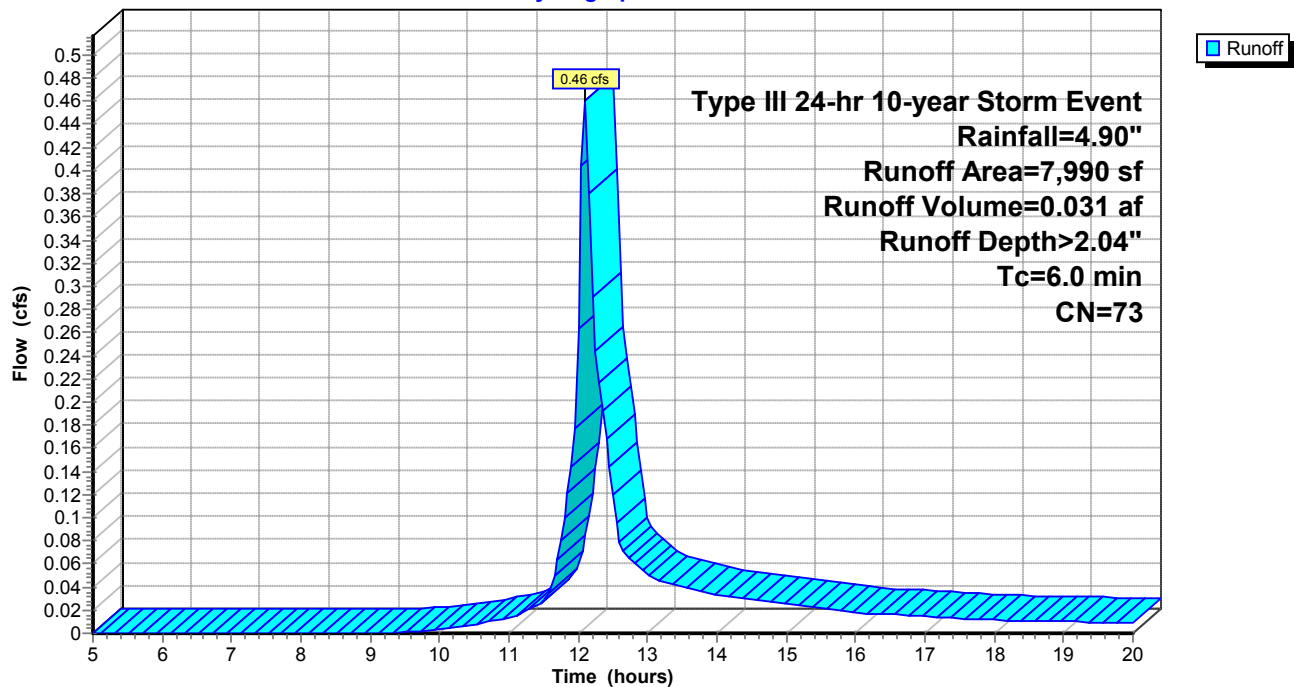
Type III 24-hr 10-year Storm Event Rainfall=4.90"

Area (sf)	CN	Description
1,441	98	Paved parking & roofs
4,706	61	>75% Grass cover, Good, HSG B
1,843	82	Dirt roads, HSG B
7,990	73	Weighted Average
6,549		Pervious Area
1,441		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 1S: Remainder of Land

Hydrograph



[1120] Proposed Conditions2

Type III 24-hr 10-year Storm Event Rainfall=4.90"

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Hydrograph for Subcatchment 1S: Remainder of Land

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.28	0.00	0.00	18.00	4.55	1.93	0.01
5.25	0.30	0.00	0.00	18.25	4.57	1.95	0.01
5.50	0.31	0.00	0.00	18.50	4.59	1.96	0.01
5.75	0.33	0.00	0.00	18.75	4.60	1.97	0.01
6.00	0.35	0.00	0.00	19.00	4.62	1.99	0.01
6.25	0.37	0.00	0.00	19.25	4.64	2.00	0.01
6.50	0.40	0.00	0.00	19.50	4.66	2.01	0.01
6.75	0.42	0.00	0.00	19.75	4.67	2.03	0.01
7.00	0.44	0.00	0.00	20.00	4.69	2.04	0.01
7.25	0.47	0.00	0.00				
7.50	0.50	0.00	0.00				
7.75	0.53	0.00	0.00				
8.00	0.56	0.00	0.00				
8.25	0.59	0.00	0.00				
8.50	0.63	0.00	0.00				
8.75	0.67	0.00	0.00				
9.00	0.71	0.00	0.00				
9.25	0.76	0.00	0.00				
9.50	0.81	0.00	0.00				
9.75	0.87	0.00	0.00				
10.00	0.93	0.01	0.00				
10.25	0.99	0.02	0.01				
10.50	1.06	0.03	0.01				
10.75	1.14	0.04	0.01				
11.00	1.22	0.06	0.01				
11.25	1.33	0.08	0.02				
11.50	1.46	0.12	0.03				
11.75	1.74	0.21	0.08				
12.00	2.45	0.54	0.26				
12.25	3.16	0.96	0.24				
12.50	3.44	1.14	0.12				
12.75	3.57	1.23	0.06				
13.00	3.67	1.30	0.05				
13.25	3.76	1.36	0.04				
13.50	3.84	1.41	0.04				
13.75	3.91	1.46	0.04				
14.00	3.97	1.51	0.03				
14.25	4.03	1.55	0.03				
14.50	4.09	1.59	0.03				
14.75	4.14	1.63	0.03				
15.00	4.19	1.66	0.03				
15.25	4.23	1.69	0.02				
15.50	4.27	1.72	0.02				
15.75	4.31	1.75	0.02				
16.00	4.34	1.78	0.02				
16.25	4.37	1.80	0.02				
16.50	4.40	1.82	0.02				
16.75	4.43	1.84	0.02				
17.00	4.46	1.86	0.01				
17.25	4.48	1.88	0.01				
17.50	4.50	1.90	0.01				
17.75	4.53	1.92	0.01				

[1120] Proposed Conditions2

Type III 24-hr 10-year Storm Event Rainfall=4.90"

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Subcatchment 2S: Lawn

Runoff = 0.00 cfs @ 12.50 hrs, Volume= 0.000 af, Depth> 0.14"

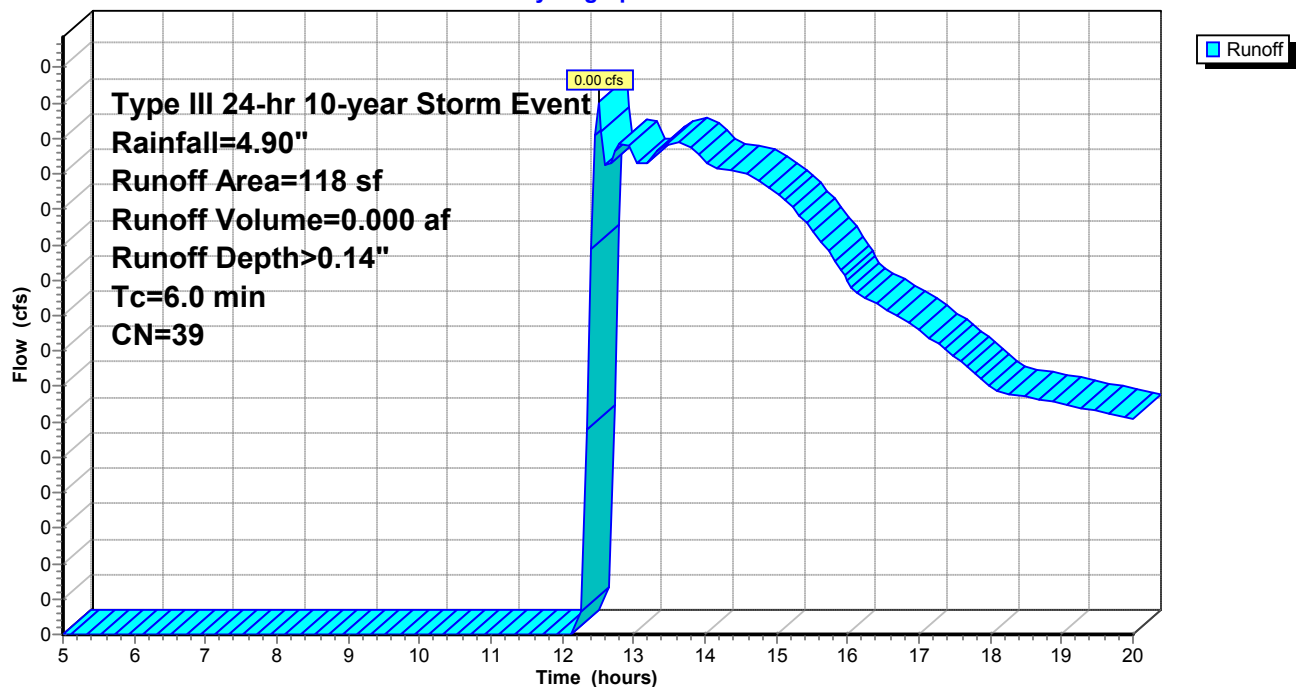
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Storm Event Rainfall=4.90"

Area (sf)	CN	Description
118	39	>75% Grass cover, Good, HSG A
118		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 2S: Lawn

Hydrograph



[1120] Proposed Conditions2

Type III 24-hr 10-year Storm Event Rainfall=4.90"

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Hydrograph for Subcatchment 2S: Lawn

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.28	0.00	0.00	18.00	4.55	0.12	0.00
5.25	0.30	0.00	0.00	18.25	4.57	0.12	0.00
5.50	0.31	0.00	0.00	18.50	4.59	0.12	0.00
5.75	0.33	0.00	0.00	18.75	4.60	0.13	0.00
6.00	0.35	0.00	0.00	19.00	4.62	0.13	0.00
6.25	0.37	0.00	0.00	19.25	4.64	0.13	0.00
6.50	0.40	0.00	0.00	19.50	4.66	0.14	0.00
6.75	0.42	0.00	0.00	19.75	4.67	0.14	0.00
7.00	0.44	0.00	0.00	20.00	4.69	0.14	0.00
7.25	0.47	0.00	0.00				
7.50	0.50	0.00	0.00				
7.75	0.53	0.00	0.00				
8.00	0.56	0.00	0.00				
8.25	0.59	0.00	0.00				
8.50	0.63	0.00	0.00				
8.75	0.67	0.00	0.00				
9.00	0.71	0.00	0.00				
9.25	0.76	0.00	0.00				
9.50	0.81	0.00	0.00				
9.75	0.87	0.00	0.00				
10.00	0.93	0.00	0.00				
10.25	0.99	0.00	0.00				
10.50	1.06	0.00	0.00				
10.75	1.14	0.00	0.00				
11.00	1.22	0.00	0.00				
11.25	1.33	0.00	0.00				
11.50	1.46	0.00	0.00				
11.75	1.74	0.00	0.00				
12.00	2.45	0.00	0.00				
12.25	3.16	0.00	0.00				
12.50	3.44	0.01	0.00				
12.75	3.57	0.01	0.00				
13.00	3.67	0.02	0.00				
13.25	3.76	0.02	0.00				
13.50	3.84	0.03	0.00				
13.75	3.91	0.04	0.00				
14.00	3.97	0.04	0.00				
14.25	4.03	0.05	0.00				
14.50	4.09	0.06	0.00				
14.75	4.14	0.06	0.00				
15.00	4.19	0.07	0.00				
15.25	4.23	0.07	0.00				
15.50	4.27	0.08	0.00				
15.75	4.31	0.08	0.00				
16.00	4.34	0.09	0.00				
16.25	4.37	0.09	0.00				
16.50	4.40	0.10	0.00				
16.75	4.43	0.10	0.00				
17.00	4.46	0.10	0.00				
17.25	4.48	0.11	0.00				
17.50	4.50	0.11	0.00				
17.75	4.53	0.11	0.00				

[1120] Proposed Conditions2

Type III 24-hr 10-year Storm Event Rainfall=4.90"

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Subcatchment 6S: Driveway

Runoff = 0.05 cfs @ 12.09 hrs, Volume= 0.004 af, Depth> 4.33"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

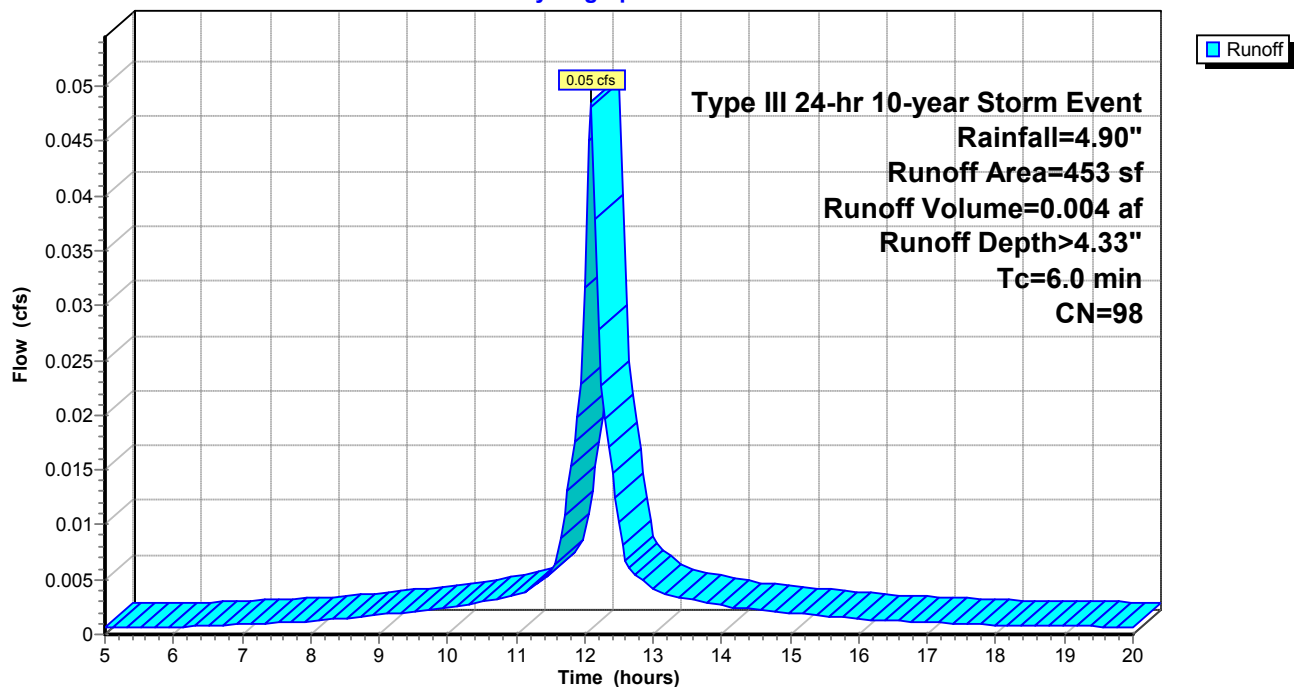
Type III 24-hr 10-year Storm Event Rainfall=4.90"

Area (sf)	CN	Description
453	98	Paved parking & roofs
453		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 6S: Driveway

Hydrograph



[1120] Proposed Conditions2

Type III 24-hr 10-year Storm Event Rainfall=4.90"

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Hydrograph for Subcatchment 6S: Driveway

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.28	0.13	0.00	18.00	4.55	4.31	0.00
5.25	0.30	0.14	0.00	18.25	4.57	4.33	0.00
5.50	0.31	0.16	0.00	18.50	4.59	4.35	0.00
5.75	0.33	0.17	0.00	18.75	4.60	4.37	0.00
6.00	0.35	0.19	0.00	19.00	4.62	4.39	0.00
6.25	0.37	0.21	0.00	19.25	4.64	4.40	0.00
6.50	0.40	0.22	0.00	19.50	4.66	4.42	0.00
6.75	0.42	0.25	0.00	19.75	4.67	4.44	0.00
7.00	0.44	0.27	0.00	20.00	4.69	4.45	0.00
7.25	0.47	0.29	0.00				
7.50	0.50	0.32	0.00				
7.75	0.53	0.34	0.00				
8.00	0.56	0.37	0.00				
8.25	0.59	0.40	0.00				
8.50	0.63	0.44	0.00				
8.75	0.67	0.48	0.00				
9.00	0.71	0.52	0.00				
9.25	0.76	0.56	0.00				
9.50	0.81	0.61	0.00				
9.75	0.87	0.66	0.00				
10.00	0.93	0.72	0.00				
10.25	0.99	0.78	0.00				
10.50	1.06	0.85	0.00				
10.75	1.14	0.93	0.00				
11.00	1.22	1.01	0.00				
11.25	1.33	1.11	0.00				
11.50	1.46	1.24	0.01				
11.75	1.74	1.52	0.01				
12.00	2.45	2.22	0.03				
12.25	3.16	2.93	0.02				
12.50	3.44	3.21	0.01				
12.75	3.57	3.34	0.01				
13.00	3.67	3.44	0.00				
13.25	3.76	3.53	0.00				
13.50	3.84	3.60	0.00				
13.75	3.91	3.68	0.00				
14.00	3.97	3.74	0.00				
14.25	4.03	3.80	0.00				
14.50	4.09	3.85	0.00				
14.75	4.14	3.90	0.00				
15.00	4.19	3.95	0.00				
15.25	4.23	3.99	0.00				
15.50	4.27	4.04	0.00				
15.75	4.31	4.07	0.00				
16.00	4.34	4.11	0.00				
16.25	4.37	4.14	0.00				
16.50	4.40	4.17	0.00				
16.75	4.43	4.19	0.00				
17.00	4.46	4.22	0.00				
17.25	4.48	4.25	0.00				
17.50	4.50	4.27	0.00				
17.75	4.53	4.29	0.00				

[1120] Proposed Conditions2

Type III 24-hr 10-year Storm Event Rainfall=4.90"

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Subcatchment 7S: Walkway

Runoff = 0.01 cfs @ 12.09 hrs, Volume= 0.001 af, Depth> 4.33"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

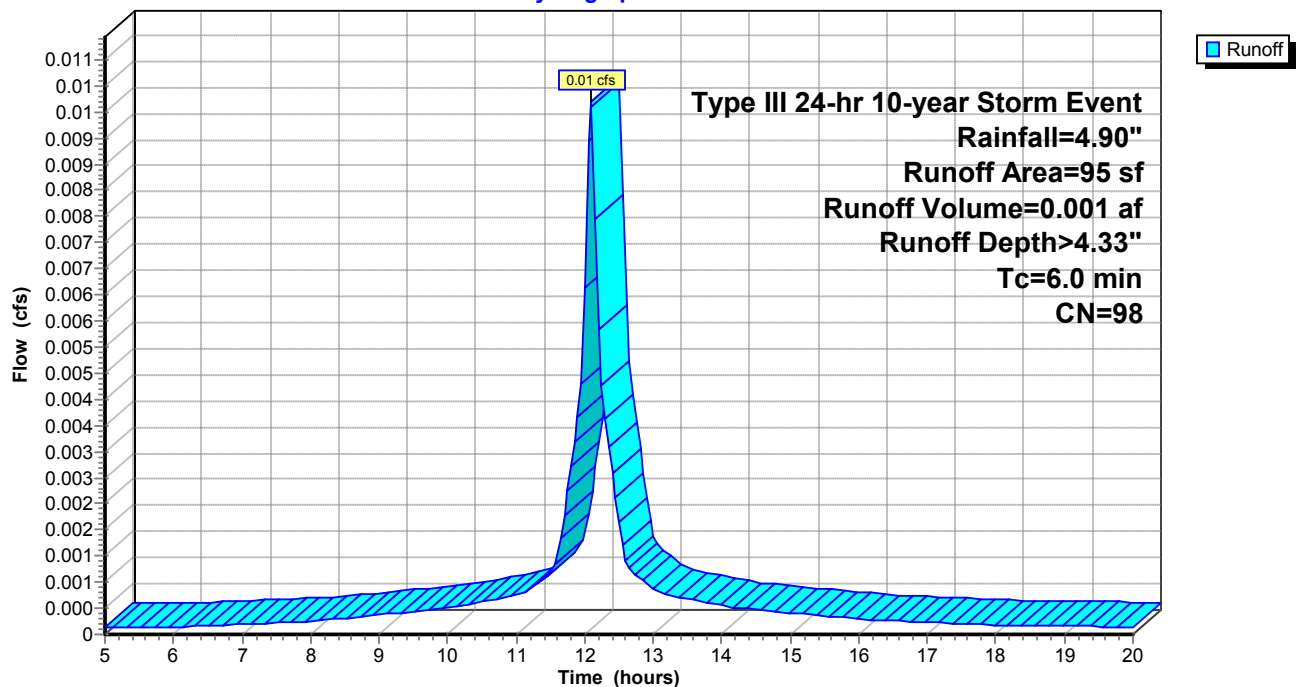
Type III 24-hr 10-year Storm Event Rainfall=4.90"

Area (sf)	CN	Description
95	98	Paved parking & roofs
95		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 7S: Walkway

Hydrograph



[1120] Proposed Conditions2

Type III 24-hr 10-year Storm Event Rainfall=4.90"

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Hydrograph for Subcatchment 7S: Walkway

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.28	0.13	0.00	18.00	4.55	4.31	0.00
5.25	0.30	0.14	0.00	18.25	4.57	4.33	0.00
5.50	0.31	0.16	0.00	18.50	4.59	4.35	0.00
5.75	0.33	0.17	0.00	18.75	4.60	4.37	0.00
6.00	0.35	0.19	0.00	19.00	4.62	4.39	0.00
6.25	0.37	0.21	0.00	19.25	4.64	4.40	0.00
6.50	0.40	0.22	0.00	19.50	4.66	4.42	0.00
6.75	0.42	0.25	0.00	19.75	4.67	4.44	0.00
7.00	0.44	0.27	0.00	20.00	4.69	4.45	0.00
7.25	0.47	0.29	0.00				
7.50	0.50	0.32	0.00				
7.75	0.53	0.34	0.00				
8.00	0.56	0.37	0.00				
8.25	0.59	0.40	0.00				
8.50	0.63	0.44	0.00				
8.75	0.67	0.48	0.00				
9.00	0.71	0.52	0.00				
9.25	0.76	0.56	0.00				
9.50	0.81	0.61	0.00				
9.75	0.87	0.66	0.00				
10.00	0.93	0.72	0.00				
10.25	0.99	0.78	0.00				
10.50	1.06	0.85	0.00				
10.75	1.14	0.93	0.00				
11.00	1.22	1.01	0.00				
11.25	1.33	1.11	0.00				
11.50	1.46	1.24	0.00				
11.75	1.74	1.52	0.00				
12.00	2.45	2.22	0.01				
12.25	3.16	2.93	0.00				
12.50	3.44	3.21	0.00				
12.75	3.57	3.34	0.00				
13.00	3.67	3.44	0.00				
13.25	3.76	3.53	0.00				
13.50	3.84	3.60	0.00				
13.75	3.91	3.68	0.00				
14.00	3.97	3.74	0.00				
14.25	4.03	3.80	0.00				
14.50	4.09	3.85	0.00				
14.75	4.14	3.90	0.00				
15.00	4.19	3.95	0.00				
15.25	4.23	3.99	0.00				
15.50	4.27	4.04	0.00				
15.75	4.31	4.07	0.00				
16.00	4.34	4.11	0.00				
16.25	4.37	4.14	0.00				
16.50	4.40	4.17	0.00				
16.75	4.43	4.19	0.00				
17.00	4.46	4.22	0.00				
17.25	4.48	4.25	0.00				
17.50	4.50	4.27	0.00				
17.75	4.53	4.29	0.00				

[1120] Proposed Conditions2

Type III 24-hr 10-year Storm Event Rainfall=4.90"

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Subcatchment 8S: Lawn

Runoff = 0.00 cfs @ 12.50 hrs, Volume= 0.000 af, Depth> 0.14"

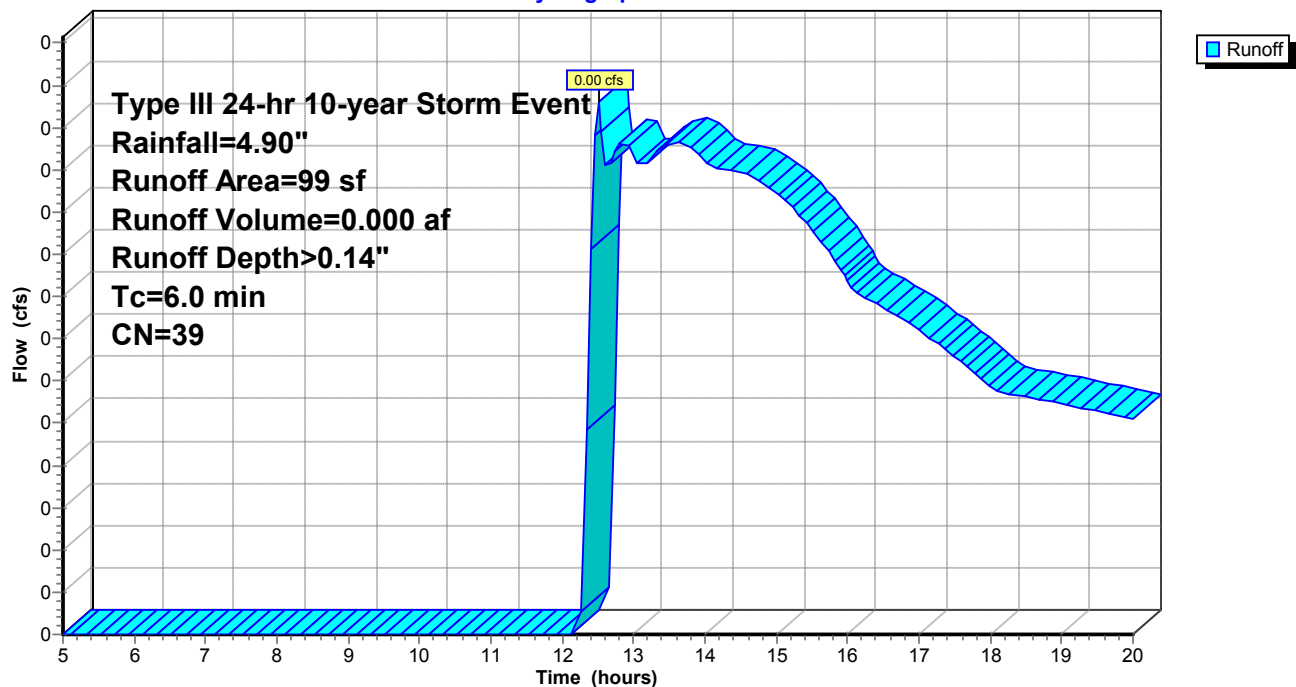
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Storm Event Rainfall=4.90"

Area (sf)	CN	Description
99	39	>75% Grass cover, Good, HSG A
99		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 8S: Lawn

Hydrograph



[1120] Proposed Conditions2

Type III 24-hr 10-year Storm Event Rainfall=4.90"

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Hydrograph for Subcatchment 8S: Lawn

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.28	0.00	0.00	18.00	4.55	0.12	0.00
5.25	0.30	0.00	0.00	18.25	4.57	0.12	0.00
5.50	0.31	0.00	0.00	18.50	4.59	0.12	0.00
5.75	0.33	0.00	0.00	18.75	4.60	0.13	0.00
6.00	0.35	0.00	0.00	19.00	4.62	0.13	0.00
6.25	0.37	0.00	0.00	19.25	4.64	0.13	0.00
6.50	0.40	0.00	0.00	19.50	4.66	0.14	0.00
6.75	0.42	0.00	0.00	19.75	4.67	0.14	0.00
7.00	0.44	0.00	0.00	20.00	4.69	0.14	0.00
7.25	0.47	0.00	0.00				
7.50	0.50	0.00	0.00				
7.75	0.53	0.00	0.00				
8.00	0.56	0.00	0.00				
8.25	0.59	0.00	0.00				
8.50	0.63	0.00	0.00				
8.75	0.67	0.00	0.00				
9.00	0.71	0.00	0.00				
9.25	0.76	0.00	0.00				
9.50	0.81	0.00	0.00				
9.75	0.87	0.00	0.00				
10.00	0.93	0.00	0.00				
10.25	0.99	0.00	0.00				
10.50	1.06	0.00	0.00				
10.75	1.14	0.00	0.00				
11.00	1.22	0.00	0.00				
11.25	1.33	0.00	0.00				
11.50	1.46	0.00	0.00				
11.75	1.74	0.00	0.00				
12.00	2.45	0.00	0.00				
12.25	3.16	0.00	0.00				
12.50	3.44	0.01	0.00				
12.75	3.57	0.01	0.00				
13.00	3.67	0.02	0.00				
13.25	3.76	0.02	0.00				
13.50	3.84	0.03	0.00				
13.75	3.91	0.04	0.00				
14.00	3.97	0.04	0.00				
14.25	4.03	0.05	0.00				
14.50	4.09	0.06	0.00				
14.75	4.14	0.06	0.00				
15.00	4.19	0.07	0.00				
15.25	4.23	0.07	0.00				
15.50	4.27	0.08	0.00				
15.75	4.31	0.08	0.00				
16.00	4.34	0.09	0.00				
16.25	4.37	0.09	0.00				
16.50	4.40	0.10	0.00				
16.75	4.43	0.10	0.00				
17.00	4.46	0.10	0.00				
17.25	4.48	0.11	0.00				
17.50	4.50	0.11	0.00				
17.75	4.53	0.11	0.00				

[1120] Proposed Conditions2

Type III 24-hr 10-year Storm Event Rainfall=4.90"

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Pond 5P: Porous Paver (Walkway)

Inflow Area = 0.004 ac, Inflow Depth > 2.19" for 10-year Storm Event event
 Inflow = 0.01 cfs @ 12.09 hrs, Volume= 0.001 af
 Outflow = 0.01 cfs @ 12.00 hrs, Volume= 0.001 af, Atten= 51%, Lag= 0.0 min
 Discarded = 0.01 cfs @ 12.00 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 3.34' @ 12.24 hrs Surf.Area= 0 sf Storage= 3 cf

Plug-Flow detention time= 2.9 min calculated for 0.001 af (100% of inflow)
 Center-of-Mass det. time= 2.7 min (744.4 - 741.8)

Volume	Invert	Avail.Storage	Storage Description
#1	3.25'	16 cf	Custom Stage Data Listed below

Elevation (feet)	Cum.Store (cubic-feet)
3.25	0
3.75	16

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	Special & User-Defined Elev. (feet) 3.25 3.26 3.75 Disch. (cfs) 0.000 0.005 0.005

Discarded OutFlow Max=0.01 cfs @ 12.00 hrs HW=3.26' (Free Discharge)
 ↑1=Special & User-Defined (Custom Controls 0.01 cfs)

[1120] Proposed Conditions2

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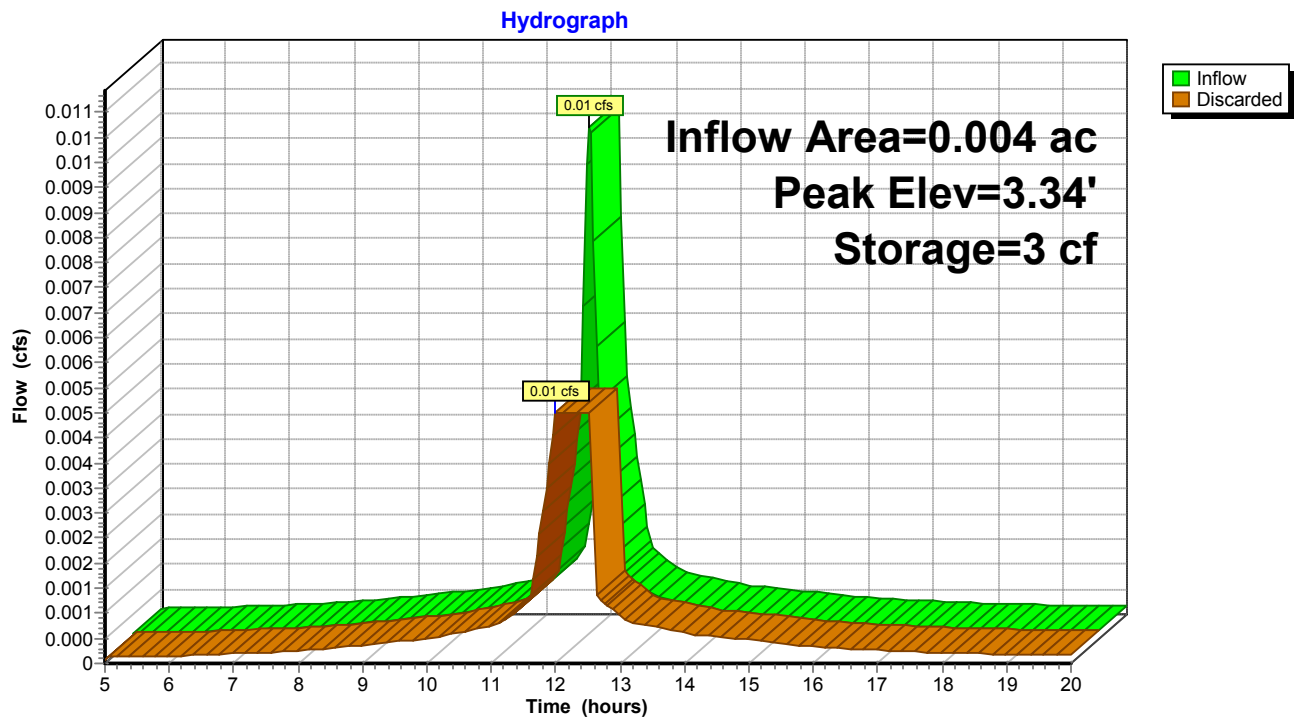
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Type III 24-hr 10-year Storm Event Rainfall=4.90"

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3/26/2020

Pond 5P: Porous Paver (Walkway)



[1120] Proposed Conditions2*Type III 24-hr 10-year Storm Event Rainfall=4.90"*

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Hydrograph for Pond 5P: Porous Paver (Walkway)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)
5.00	0.00	0	3.25	0.00
5.50	0.00	0	3.25	0.00
6.00	0.00	0	3.25	0.00
6.50	0.00	0	3.25	0.00
7.00	0.00	0	3.25	0.00
7.50	0.00	0	3.25	0.00
8.00	0.00	0	3.25	0.00
8.50	0.00	0	3.25	0.00
9.00	0.00	0	3.25	0.00
9.50	0.00	0	3.25	0.00
10.00	0.00	0	3.25	0.00
10.50	0.00	0	3.25	0.00
11.00	0.00	0	3.25	0.00
11.50	0.00	0	3.25	0.00
12.00	0.01	0	3.26	0.01
12.50	0.00	2	3.30	0.01
13.00	0.00	0	3.25	0.00
13.50	0.00	0	3.25	0.00
14.00	0.00	0	3.25	0.00
14.50	0.00	0	3.25	0.00
15.00	0.00	0	3.25	0.00
15.50	0.00	0	3.25	0.00
16.00	0.00	0	3.25	0.00
16.50	0.00	0	3.25	0.00
17.00	0.00	0	3.25	0.00
17.50	0.00	0	3.25	0.00
18.00	0.00	0	3.25	0.00
18.50	0.00	0	3.25	0.00
19.00	0.00	0	3.25	0.00
19.50	0.00	0	3.25	0.00
20.00	0.00	0	3.25	0.00

[1120] Proposed Conditions2

Type III 24-hr 10-year Storm Event Rainfall=4.90"

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Pond 9P: Porous Paver (Driveway)

Inflow Area = 0.013 ac, Inflow Depth > 3.46" for 10-year Storm Event event
 Inflow = 0.05 cfs @ 12.09 hrs, Volume= 0.004 af
 Outflow = 0.03 cfs @ 12.00 hrs, Volume= 0.004 af, Atten= 49%, Lag= 0.0 min
 Discarded = 0.03 cfs @ 12.00 hrs, Volume= 0.004 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 3.34' @ 12.23 hrs Surf.Area= 0 sf Storage= 13 cf

Plug-Flow detention time= 2.6 min calculated for 0.004 af (100% of inflow)
 Center-of-Mass det. time= 2.4 min (739.3 - 736.9)

Volume	Invert	Avail.Storage	Storage Description
#1	3.25'	75 cf	Custom Stage Data Listed below

Elevation (feet)	Cum.Store (cubic-feet)
3.25	0
3.75	75

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	Special & User-Defined Elev. (feet) 3.25 3.26 3.75 Disch. (cfs) 0.000 0.025 0.025

Discarded OutFlow Max=0.03 cfs @ 12.00 hrs HW=3.26' (Free Discharge)
 ↑1=Special & User-Defined (Custom Controls 0.03 cfs)

[1120] Proposed Conditions2

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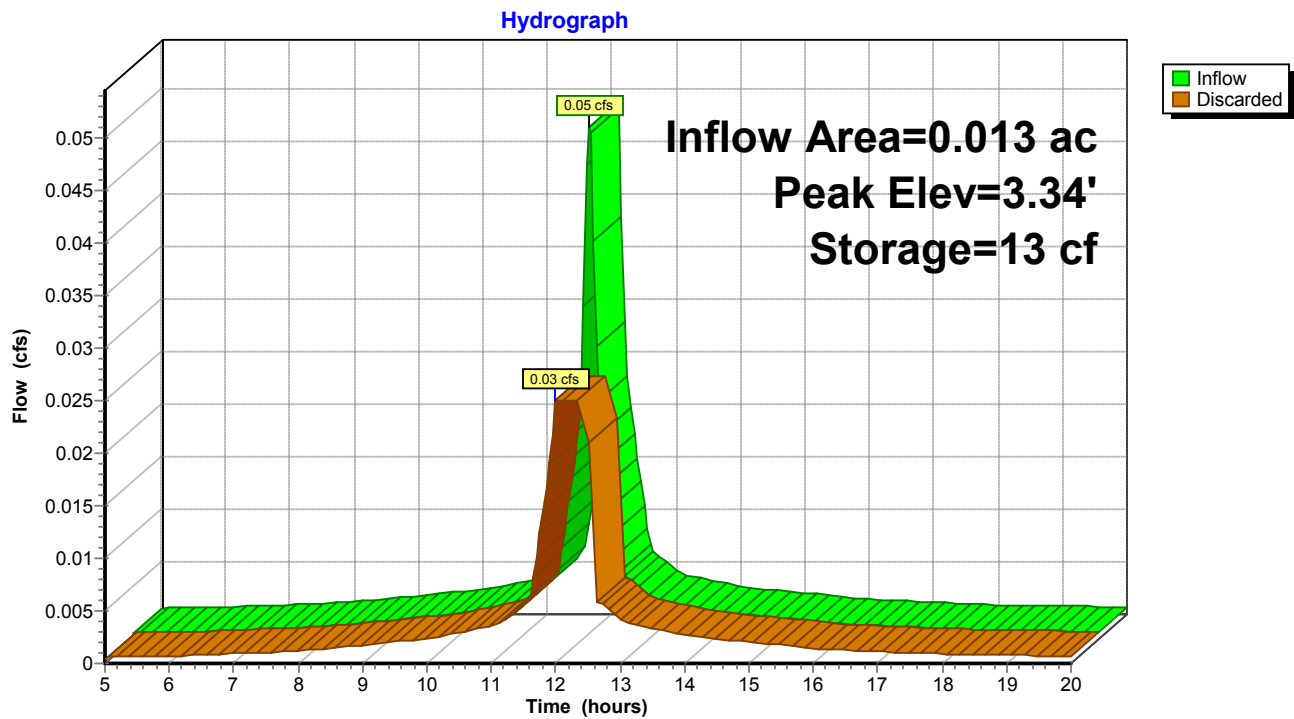
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Type III 24-hr 10-year Storm Event Rainfall=4.90"

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Pond 9P: Porous Paver (Driveway)



[1120] Proposed Conditions2*Type III 24-hr 10-year Storm Event Rainfall=4.90"*

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Hydrograph for Pond 9P: Porous Paver (Driveway)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)
5.00	0.00	0	3.25	0.00
5.50	0.00	0	3.25	0.00
6.00	0.00	0	3.25	0.00
6.50	0.00	0	3.25	0.00
7.00	0.00	0	3.25	0.00
7.50	0.00	0	3.25	0.00
8.00	0.00	0	3.25	0.00
8.50	0.00	0	3.25	0.00
9.00	0.00	0	3.25	0.00
9.50	0.00	0	3.25	0.00
10.00	0.00	0	3.25	0.00
10.50	0.00	0	3.25	0.00
11.00	0.00	0	3.25	0.00
11.50	0.01	0	3.25	0.01
12.00	0.03	2	3.26	0.03
12.50	0.01	5	3.28	0.03
13.00	0.00	0	3.25	0.00
13.50	0.00	0	3.25	0.00
14.00	0.00	0	3.25	0.00
14.50	0.00	0	3.25	0.00
15.00	0.00	0	3.25	0.00
15.50	0.00	0	3.25	0.00
16.00	0.00	0	3.25	0.00
16.50	0.00	0	3.25	0.00
17.00	0.00	0	3.25	0.00
17.50	0.00	0	3.25	0.00
18.00	0.00	0	3.25	0.00
18.50	0.00	0	3.25	0.00
19.00	0.00	0	3.25	0.00
19.50	0.00	0	3.25	0.00
20.00	0.00	0	3.25	0.00

[1120] Proposed Conditions2

Type III 24-hr 25-year Storm Event Rainfall=6.20"

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Subcatchment 1S: Remainder of Land

Runoff = 0.69 cfs @ 12.09 hrs, Volume= 0.046 af, Depth> 3.03"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

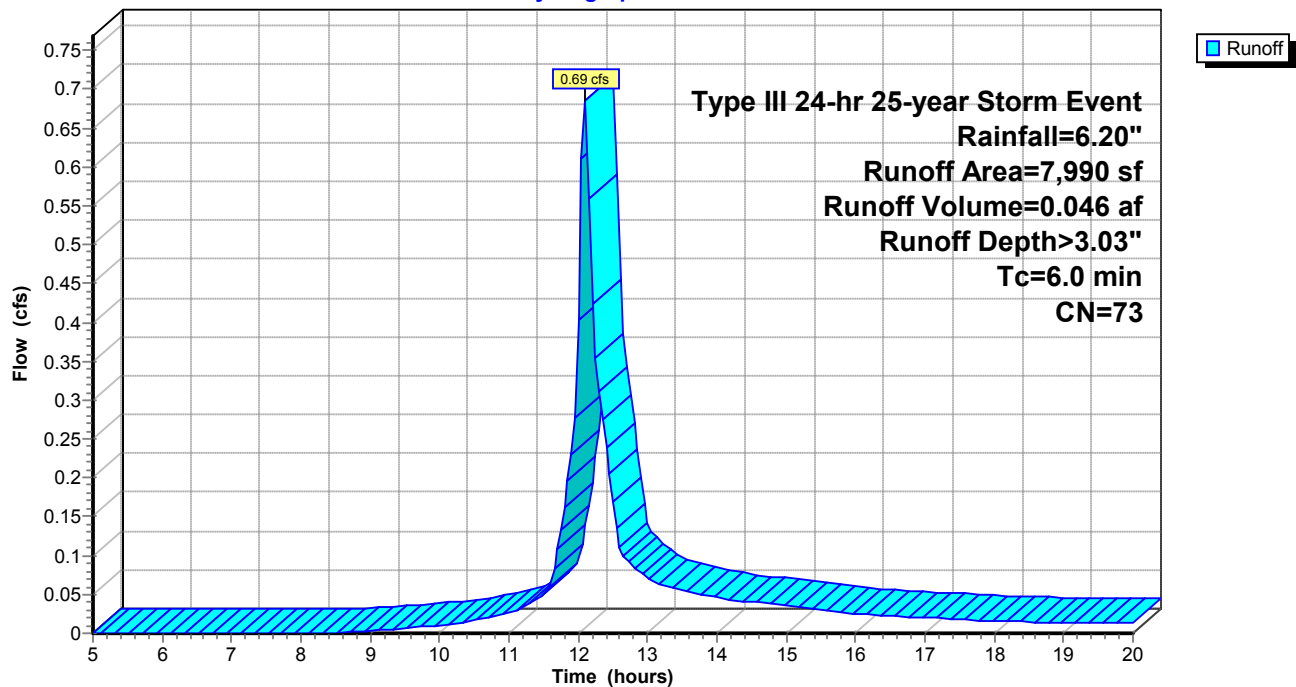
Type III 24-hr 25-year Storm Event Rainfall=6.20"

Area (sf)	CN	Description
1,441	98	Paved parking & roofs
4,706	61	>75% Grass cover, Good, HSG B
1,843	82	Dirt roads, HSG B
7,990	73	Weighted Average
6,549		Pervious Area
1,441		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 1S: Remainder of Land

Hydrograph



[1120] Proposed Conditions2

Type III 24-hr 25-year Storm Event Rainfall=6.20"

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Hydrograph for Subcatchment 1S: Remainder of Land

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.35	0.00	0.00	18.00	5.75	2.89	0.02
5.25	0.37	0.00	0.00	18.25	5.78	2.91	0.01
5.50	0.40	0.00	0.00	18.50	5.80	2.93	0.01
5.75	0.42	0.00	0.00	18.75	5.83	2.94	0.01
6.00	0.45	0.00	0.00	19.00	5.85	2.96	0.01
6.25	0.47	0.00	0.00	19.25	5.87	2.98	0.01
6.50	0.50	0.00	0.00	19.50	5.89	3.00	0.01
6.75	0.53	0.00	0.00	19.75	5.91	3.02	0.01
7.00	0.56	0.00	0.00	20.00	5.93	3.03	0.01
7.25	0.59	0.00	0.00				
7.50	0.63	0.00	0.00				
7.75	0.67	0.00	0.00				
8.00	0.71	0.00	0.00				
8.25	0.75	0.00	0.00				
8.50	0.80	0.00	0.00				
8.75	0.85	0.00	0.00				
9.00	0.90	0.01	0.00				
9.25	0.96	0.01	0.00				
9.50	1.03	0.02	0.01				
9.75	1.10	0.03	0.01				
10.00	1.17	0.05	0.01				
10.25	1.25	0.06	0.01				
10.50	1.34	0.08	0.02				
10.75	1.44	0.11	0.02				
11.00	1.55	0.15	0.03				
11.25	1.68	0.19	0.04				
11.50	1.85	0.26	0.05				
11.75	2.20	0.41	0.13				
12.00	3.10	0.92	0.40				
12.25	4.00	1.53	0.35				
12.50	4.35	1.79	0.17				
12.75	4.52	1.91	0.09				
13.00	4.65	2.01	0.07				
13.25	4.76	2.09	0.06				
13.50	4.86	2.17	0.06				
13.75	4.95	2.24	0.05				
14.00	5.03	2.30	0.05				
14.25	5.10	2.36	0.04				
14.50	5.17	2.42	0.04				
14.75	5.24	2.47	0.04				
15.00	5.30	2.52	0.04				
15.25	5.35	2.56	0.03				
15.50	5.40	2.60	0.03				
15.75	5.45	2.64	0.03				
16.00	5.49	2.67	0.03				
16.25	5.53	2.71	0.02				
16.50	5.57	2.74	0.02				
16.75	5.61	2.76	0.02				
17.00	5.64	2.79	0.02				
17.25	5.67	2.82	0.02				
17.50	5.70	2.84	0.02				
17.75	5.73	2.86	0.02				

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Type III 24-hr 25-year Storm Event Rainfall=6.20"

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Subcatchment 2S: Lawn

Runoff = 0.00 cfs @ 12.32 hrs, Volume= 0.000 af, Depth> 0.43"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

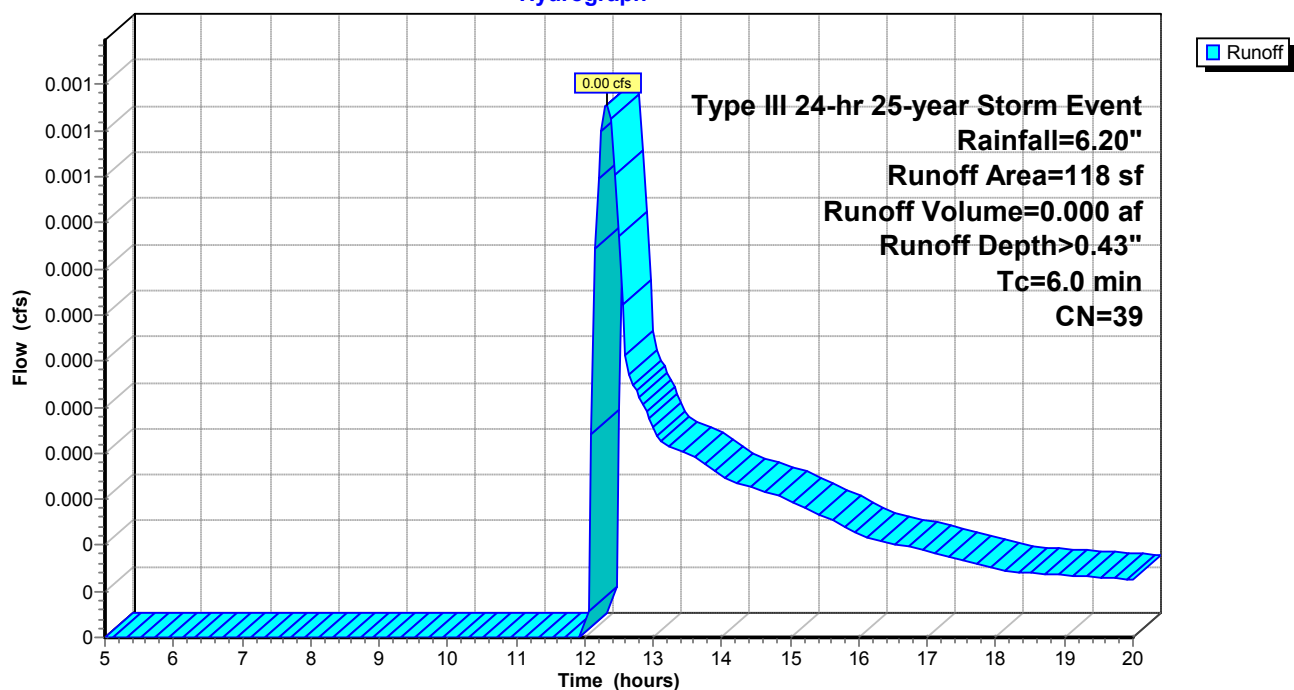
Type III 24-hr 25-year Storm Event Rainfall=6.20"

Area (sf)	CN	Description
118	39	>75% Grass cover, Good, HSG A
118		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 2S: Lawn

Hydrograph



[1120] Proposed Conditions2

Type III 24-hr 25-year Storm Event Rainfall=6.20"

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Hydrograph for Subcatchment 2S: Lawn

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.35	0.00	0.00	18.00	5.75	0.38	0.00
5.25	0.37	0.00	0.00	18.25	5.78	0.38	0.00
5.50	0.40	0.00	0.00	18.50	5.80	0.39	0.00
5.75	0.42	0.00	0.00	18.75	5.83	0.40	0.00
6.00	0.45	0.00	0.00	19.00	5.85	0.40	0.00
6.25	0.47	0.00	0.00	19.25	5.87	0.41	0.00
6.50	0.50	0.00	0.00	19.50	5.89	0.42	0.00
6.75	0.53	0.00	0.00	19.75	5.91	0.42	0.00
7.00	0.56	0.00	0.00	20.00	5.93	0.43	0.00
7.25	0.59	0.00	0.00				
7.50	0.63	0.00	0.00				
7.75	0.67	0.00	0.00				
8.00	0.71	0.00	0.00				
8.25	0.75	0.00	0.00				
8.50	0.80	0.00	0.00				
8.75	0.85	0.00	0.00				
9.00	0.90	0.00	0.00				
9.25	0.96	0.00	0.00				
9.50	1.03	0.00	0.00				
9.75	1.10	0.00	0.00				
10.00	1.17	0.00	0.00				
10.25	1.25	0.00	0.00				
10.50	1.34	0.00	0.00				
10.75	1.44	0.00	0.00				
11.00	1.55	0.00	0.00				
11.25	1.68	0.00	0.00				
11.50	1.85	0.00	0.00				
11.75	2.20	0.00	0.00				
12.00	3.10	0.00	0.00				
12.25	4.00	0.05	0.00				
12.50	4.35	0.09	0.00				
12.75	4.52	0.11	0.00				
13.00	4.65	0.13	0.00				
13.25	4.76	0.15	0.00				
13.50	4.86	0.17	0.00				
13.75	4.95	0.19	0.00				
14.00	5.03	0.21	0.00				
14.25	5.10	0.22	0.00				
14.50	5.17	0.24	0.00				
14.75	5.24	0.25	0.00				
15.00	5.30	0.26	0.00				
15.25	5.35	0.28	0.00				
15.50	5.40	0.29	0.00				
15.75	5.45	0.30	0.00				
16.00	5.49	0.31	0.00				
16.25	5.53	0.32	0.00				
16.50	5.57	0.33	0.00				
16.75	5.61	0.34	0.00				
17.00	5.64	0.35	0.00				
17.25	5.67	0.36	0.00				
17.50	5.70	0.36	0.00				
17.75	5.73	0.37	0.00				

[1120] Proposed Conditions2

Type III 24-hr 25-year Storm Event Rainfall=6.20"

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Subcatchment 6S: Driveway

Runoff = 0.06 cfs @ 12.09 hrs, Volume= 0.005 af, Depth> 5.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

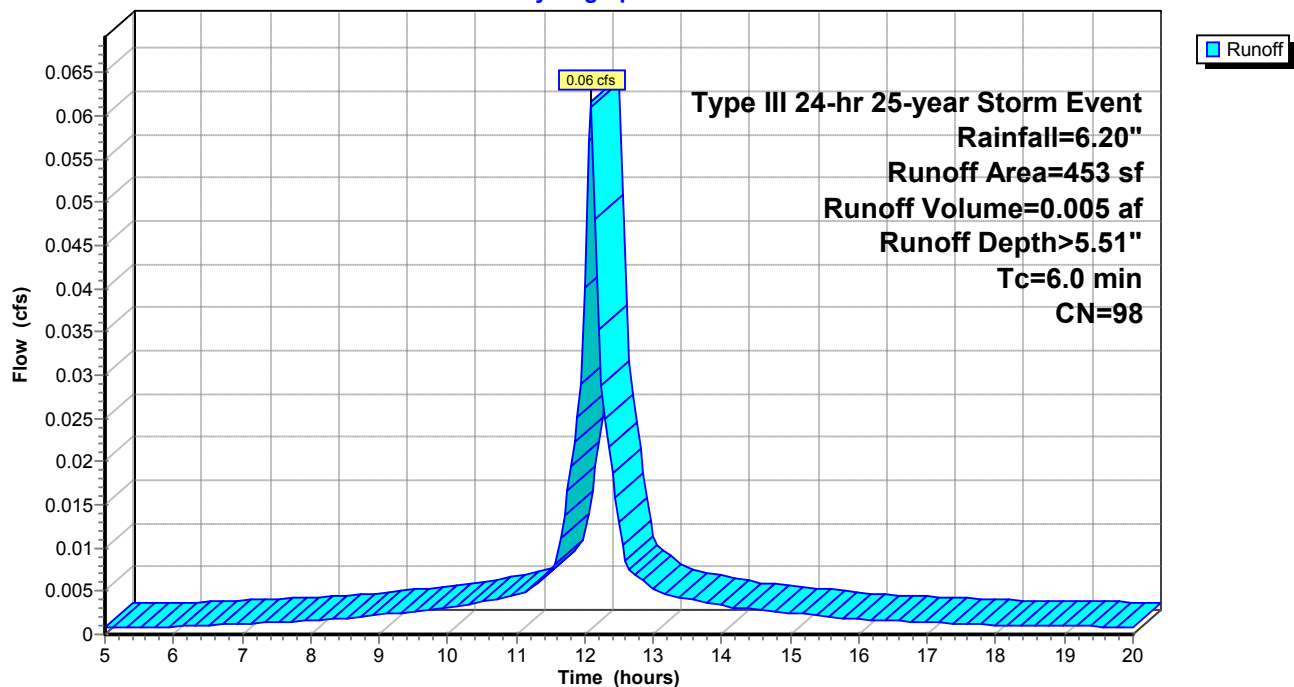
Type III 24-hr 25-year Storm Event Rainfall=6.20"

Area (sf)	CN	Description
453	98	Paved parking & roofs
453		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 6S: Driveway

Hydrograph



[1120] Proposed Conditions2

Type III 24-hr 25-year Storm Event Rainfall=6.20"

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Hydrograph for Subcatchment 6S: Driveway

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.35	0.19	0.00	18.00	5.75	5.52	0.00
5.25	0.37	0.21	0.00	18.25	5.78	5.54	0.00
5.50	0.40	0.23	0.00	18.50	5.80	5.56	0.00
5.75	0.42	0.25	0.00	18.75	5.83	5.59	0.00
6.00	0.45	0.27	0.00	19.00	5.85	5.61	0.00
6.25	0.47	0.29	0.00	19.25	5.87	5.63	0.00
6.50	0.50	0.32	0.00	19.50	5.89	5.65	0.00
6.75	0.53	0.34	0.00	19.75	5.91	5.67	0.00
7.00	0.56	0.37	0.00	20.00	5.93	5.70	0.00
7.25	0.59	0.40	0.00				
7.50	0.63	0.44	0.00				
7.75	0.67	0.47	0.00				
8.00	0.71	0.51	0.00				
8.25	0.75	0.55	0.00				
8.50	0.80	0.59	0.00				
8.75	0.85	0.64	0.00				
9.00	0.90	0.70	0.00				
9.25	0.96	0.76	0.00				
9.50	1.03	0.82	0.00				
9.75	1.10	0.89	0.00				
10.00	1.17	0.96	0.00				
10.25	1.25	1.04	0.00				
10.50	1.34	1.13	0.00				
10.75	1.44	1.22	0.00				
11.00	1.55	1.33	0.00				
11.25	1.68	1.46	0.01				
11.50	1.85	1.62	0.01				
11.75	2.20	1.98	0.02				
12.00	3.10	2.87	0.04				
12.25	4.00	3.76	0.03				
12.50	4.35	4.12	0.01				
12.75	4.52	4.28	0.01				
13.00	4.65	4.41	0.01				
13.25	4.76	4.52	0.00				
13.50	4.86	4.62	0.00				
13.75	4.95	4.71	0.00				
14.00	5.03	4.79	0.00				
14.25	5.10	4.86	0.00				
14.50	5.17	4.93	0.00				
14.75	5.24	5.00	0.00				
15.00	5.30	5.06	0.00				
15.25	5.35	5.11	0.00				
15.50	5.40	5.17	0.00				
15.75	5.45	5.21	0.00				
16.00	5.49	5.26	0.00				
16.25	5.53	5.29	0.00				
16.50	5.57	5.33	0.00				
16.75	5.61	5.37	0.00				
17.00	5.64	5.40	0.00				
17.25	5.67	5.43	0.00				
17.50	5.70	5.46	0.00				
17.75	5.73	5.49	0.00				

[1120] Proposed Conditions2

Type III 24-hr 25-year Storm Event Rainfall=6.20"

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Subcatchment 7S: Walkway

Runoff = 0.01 cfs @ 12.09 hrs, Volume= 0.001 af, Depth> 5.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

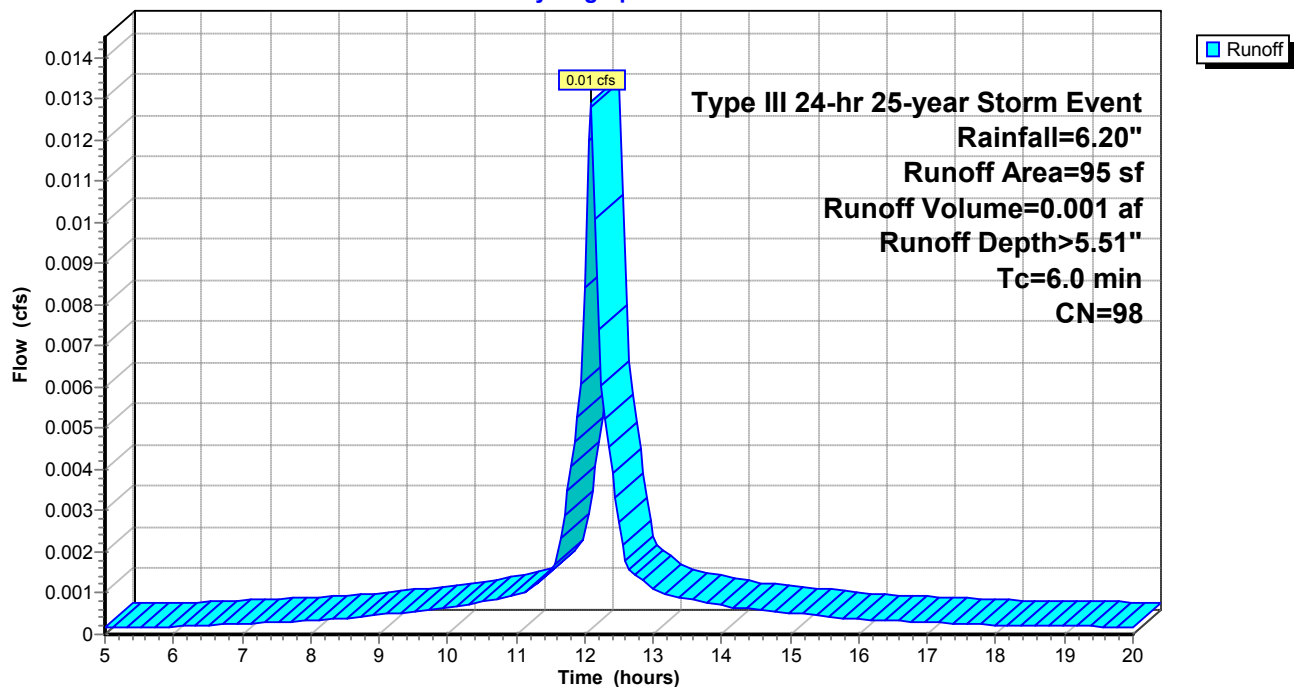
Type III 24-hr 25-year Storm Event Rainfall=6.20"

Area (sf)	CN	Description
95	98	Paved parking & roofs
95		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 7S: Walkway

Hydrograph



[1120] Proposed Conditions2

Type III 24-hr 25-year Storm Event Rainfall=6.20"

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Hydrograph for Subcatchment 7S: Walkway

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.35	0.19	0.00	18.00	5.75	5.52	0.00
5.25	0.37	0.21	0.00	18.25	5.78	5.54	0.00
5.50	0.40	0.23	0.00	18.50	5.80	5.56	0.00
5.75	0.42	0.25	0.00	18.75	5.83	5.59	0.00
6.00	0.45	0.27	0.00	19.00	5.85	5.61	0.00
6.25	0.47	0.29	0.00	19.25	5.87	5.63	0.00
6.50	0.50	0.32	0.00	19.50	5.89	5.65	0.00
6.75	0.53	0.34	0.00	19.75	5.91	5.67	0.00
7.00	0.56	0.37	0.00	20.00	5.93	5.70	0.00
7.25	0.59	0.40	0.00				
7.50	0.63	0.44	0.00				
7.75	0.67	0.47	0.00				
8.00	0.71	0.51	0.00				
8.25	0.75	0.55	0.00				
8.50	0.80	0.59	0.00				
8.75	0.85	0.64	0.00				
9.00	0.90	0.70	0.00				
9.25	0.96	0.76	0.00				
9.50	1.03	0.82	0.00				
9.75	1.10	0.89	0.00				
10.00	1.17	0.96	0.00				
10.25	1.25	1.04	0.00				
10.50	1.34	1.13	0.00				
10.75	1.44	1.22	0.00				
11.00	1.55	1.33	0.00				
11.25	1.68	1.46	0.00				
11.50	1.85	1.62	0.00				
11.75	2.20	1.98	0.00				
12.00	3.10	2.87	0.01				
12.25	4.00	3.76	0.01				
12.50	4.35	4.12	0.00				
12.75	4.52	4.28	0.00				
13.00	4.65	4.41	0.00				
13.25	4.76	4.52	0.00				
13.50	4.86	4.62	0.00				
13.75	4.95	4.71	0.00				
14.00	5.03	4.79	0.00				
14.25	5.10	4.86	0.00				
14.50	5.17	4.93	0.00				
14.75	5.24	5.00	0.00				
15.00	5.30	5.06	0.00				
15.25	5.35	5.11	0.00				
15.50	5.40	5.17	0.00				
15.75	5.45	5.21	0.00				
16.00	5.49	5.26	0.00				
16.25	5.53	5.29	0.00				
16.50	5.57	5.33	0.00				
16.75	5.61	5.37	0.00				
17.00	5.64	5.40	0.00				
17.25	5.67	5.43	0.00				
17.50	5.70	5.46	0.00				
17.75	5.73	5.49	0.00				

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Type III 24-hr 25-year Storm Event Rainfall=6.20"

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Subcatchment 8S: Lawn

Runoff = 0.00 cfs @ 12.32 hrs, Volume= 0.000 af, Depth> 0.43"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

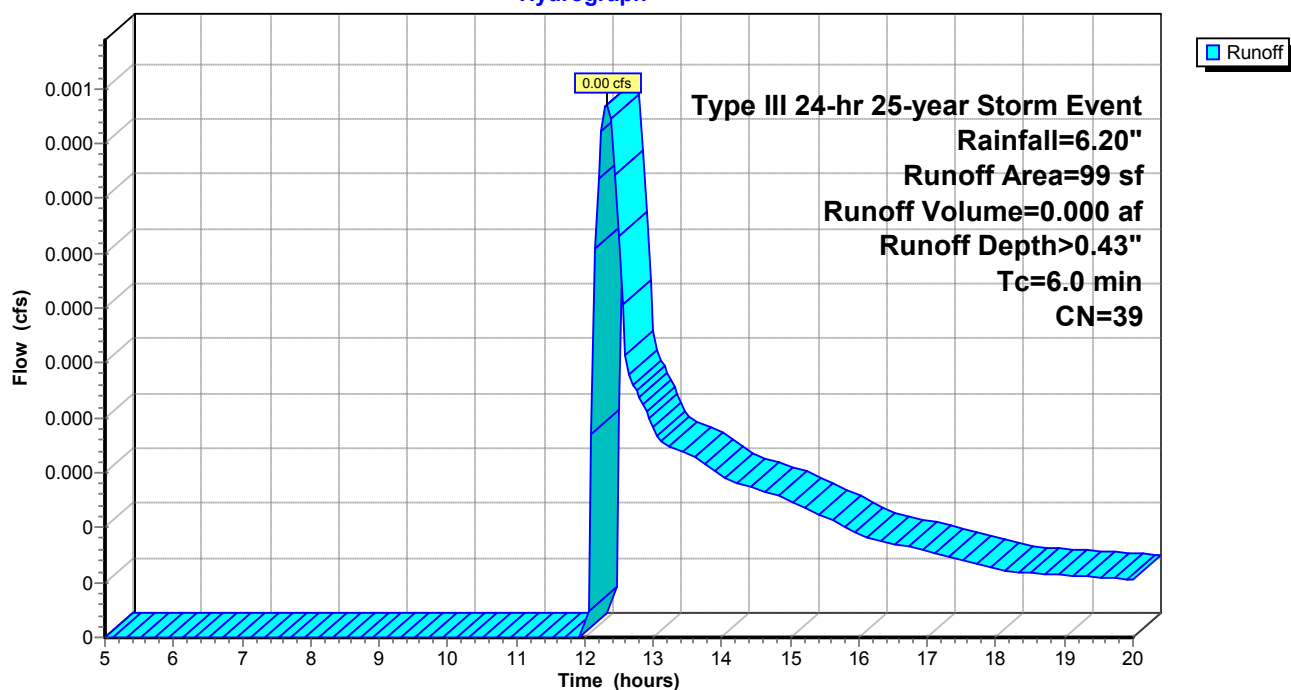
Type III 24-hr 25-year Storm Event Rainfall=6.20"

Area (sf)	CN	Description
99	39	>75% Grass cover, Good, HSG A
99		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 8S: Lawn

Hydrograph



[1120] Proposed Conditions2

Type III 24-hr 25-year Storm Event Rainfall=6.20"

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Hydrograph for Subcatchment 8S: Lawn

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.35	0.00	0.00	18.00	5.75	0.38	0.00
5.25	0.37	0.00	0.00	18.25	5.78	0.38	0.00
5.50	0.40	0.00	0.00	18.50	5.80	0.39	0.00
5.75	0.42	0.00	0.00	18.75	5.83	0.40	0.00
6.00	0.45	0.00	0.00	19.00	5.85	0.40	0.00
6.25	0.47	0.00	0.00	19.25	5.87	0.41	0.00
6.50	0.50	0.00	0.00	19.50	5.89	0.42	0.00
6.75	0.53	0.00	0.00	19.75	5.91	0.42	0.00
7.00	0.56	0.00	0.00	20.00	5.93	0.43	0.00
7.25	0.59	0.00	0.00				
7.50	0.63	0.00	0.00				
7.75	0.67	0.00	0.00				
8.00	0.71	0.00	0.00				
8.25	0.75	0.00	0.00				
8.50	0.80	0.00	0.00				
8.75	0.85	0.00	0.00				
9.00	0.90	0.00	0.00				
9.25	0.96	0.00	0.00				
9.50	1.03	0.00	0.00				
9.75	1.10	0.00	0.00				
10.00	1.17	0.00	0.00				
10.25	1.25	0.00	0.00				
10.50	1.34	0.00	0.00				
10.75	1.44	0.00	0.00				
11.00	1.55	0.00	0.00				
11.25	1.68	0.00	0.00				
11.50	1.85	0.00	0.00				
11.75	2.20	0.00	0.00				
12.00	3.10	0.00	0.00				
12.25	4.00	0.05	0.00				
12.50	4.35	0.09	0.00				
12.75	4.52	0.11	0.00				
13.00	4.65	0.13	0.00				
13.25	4.76	0.15	0.00				
13.50	4.86	0.17	0.00				
13.75	4.95	0.19	0.00				
14.00	5.03	0.21	0.00				
14.25	5.10	0.22	0.00				
14.50	5.17	0.24	0.00				
14.75	5.24	0.25	0.00				
15.00	5.30	0.26	0.00				
15.25	5.35	0.28	0.00				
15.50	5.40	0.29	0.00				
15.75	5.45	0.30	0.00				
16.00	5.49	0.31	0.00				
16.25	5.53	0.32	0.00				
16.50	5.57	0.33	0.00				
16.75	5.61	0.34	0.00				
17.00	5.64	0.35	0.00				
17.25	5.67	0.36	0.00				
17.50	5.70	0.36	0.00				
17.75	5.73	0.37	0.00				

[1120] Proposed Conditions2

Type III 24-hr 25-year Storm Event Rainfall=6.20"

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Pond 5P: Porous Paver (Walkway)

Inflow Area = 0.004 ac, Inflow Depth > 2.92" for 25-year Storm Event event
 Inflow = 0.01 cfs @ 12.09 hrs, Volume= 0.001 af
 Outflow = 0.01 cfs @ 11.90 hrs, Volume= 0.001 af, Atten= 62%, Lag= 0.0 min
 Discarded = 0.01 cfs @ 11.90 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 3.43' @ 12.35 hrs Surf.Area= 0 sf Storage= 6 cf

Plug-Flow detention time= 5.4 min calculated for 0.001 af (100% of inflow)
 Center-of-Mass det. time= 5.1 min (750.3 - 745.2)

Volume	Invert	Avail.Storage	Storage Description
#1	3.25'	16 cf	Custom Stage Data Listed below

Elevation (feet)	Cum.Store (cubic-feet)
3.25	0
3.75	16

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	Special & User-Defined Elev. (feet) 3.25 3.26 3.75 Disch. (cfs) 0.000 0.005 0.005

Discarded OutFlow Max=0.01 cfs @ 11.90 hrs HW=3.26' (Free Discharge)
 ↑1=Special & User-Defined (Custom Controls 0.01 cfs)

[1120] Proposed Conditions2

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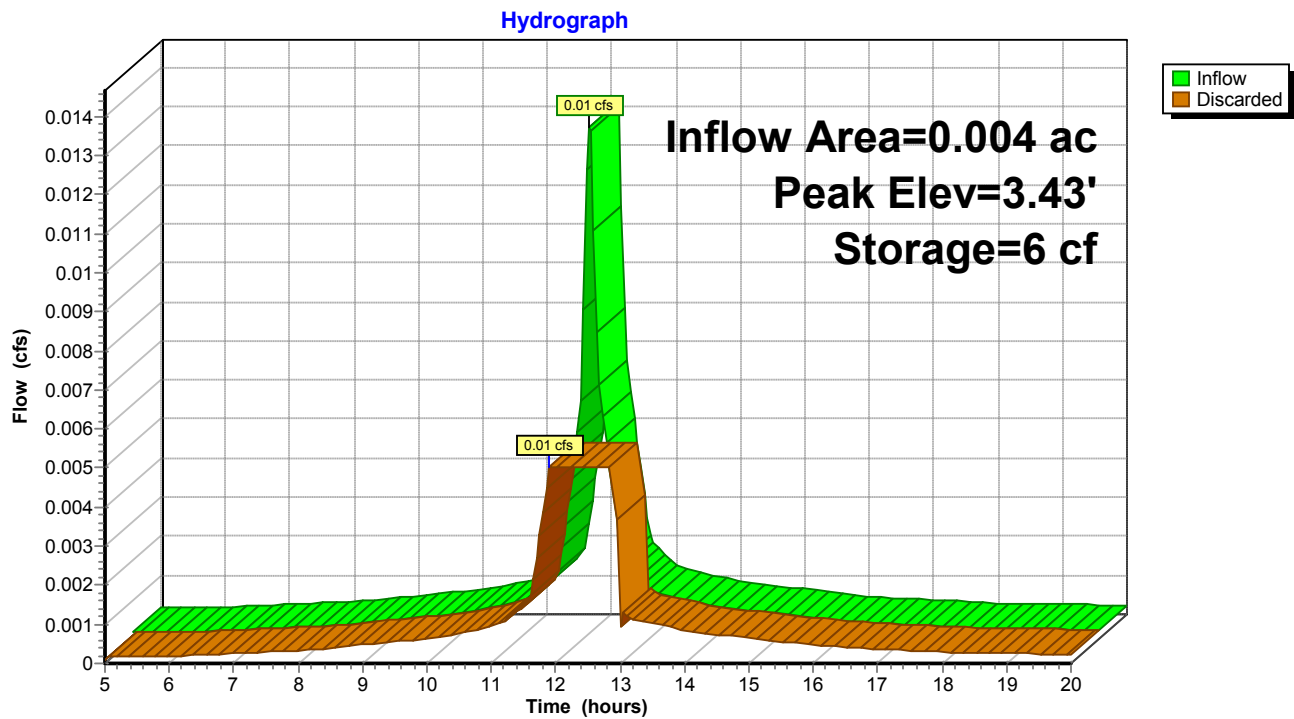
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Type III 24-hr 25-year Storm Event Rainfall=6.20"

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Pond 5P: Porous Paver (Walkway)



[1120] Proposed Conditions2*Type III 24-hr 25-year Storm Event Rainfall=6.20"*

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Hydrograph for Pond 5P: Porous Paver (Walkway)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)
5.00	0.00	0	3.25	0.00
5.50	0.00	0	3.25	0.00
6.00	0.00	0	3.25	0.00
6.50	0.00	0	3.25	0.00
7.00	0.00	0	3.25	0.00
7.50	0.00	0	3.25	0.00
8.00	0.00	0	3.25	0.00
8.50	0.00	0	3.25	0.00
9.00	0.00	0	3.25	0.00
9.50	0.00	0	3.25	0.00
10.00	0.00	0	3.25	0.00
10.50	0.00	0	3.25	0.00
11.00	0.00	0	3.25	0.00
11.50	0.00	0	3.25	0.00
12.00	0.01	1	3.28	0.01
12.50	0.00	5	3.41	0.01
13.00	0.00	0	3.25	0.00
13.50	0.00	0	3.25	0.00
14.00	0.00	0	3.25	0.00
14.50	0.00	0	3.25	0.00
15.00	0.00	0	3.25	0.00
15.50	0.00	0	3.25	0.00
16.00	0.00	0	3.25	0.00
16.50	0.00	0	3.25	0.00
17.00	0.00	0	3.25	0.00
17.50	0.00	0	3.25	0.00
18.00	0.00	0	3.25	0.00
18.50	0.00	0	3.25	0.00
19.00	0.00	0	3.25	0.00
19.50	0.00	0	3.25	0.00
20.00	0.00	0	3.25	0.00

[1120] Proposed Conditions2

Type III 24-hr 25-year Storm Event Rainfall=6.20"

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Pond 9P: Porous Paver (Driveway)

Inflow Area = 0.013 ac, Inflow Depth > 4.46" for 25-year Storm Event event
 Inflow = 0.06 cfs @ 12.09 hrs, Volume= 0.005 af
 Outflow = 0.03 cfs @ 11.95 hrs, Volume= 0.005 af, Atten= 60%, Lag= 0.0 min
 Discarded = 0.03 cfs @ 11.95 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 3.41' @ 12.31 hrs Surf.Area= 0 sf Storage= 24 cf

Plug-Flow detention time= 4.6 min calculated for 0.005 af (100% of inflow)
 Center-of-Mass det. time= 4.3 min (741.3 - 737.0)

Volume	Invert	Avail.Storage	Storage Description
#1	3.25'	75 cf	Custom Stage Data Listed below

Elevation (feet)	Cum.Store (cubic-feet)
3.25	0
3.75	75

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	Special & User-Defined Elev. (feet) 3.25 3.26 3.75 Disch. (cfs) 0.000 0.025 0.025

Discarded OutFlow Max=0.03 cfs @ 11.95 hrs HW=3.26' (Free Discharge)
 ↑1=Special & User-Defined (Custom Controls 0.03 cfs)

[1120] Proposed Conditions2

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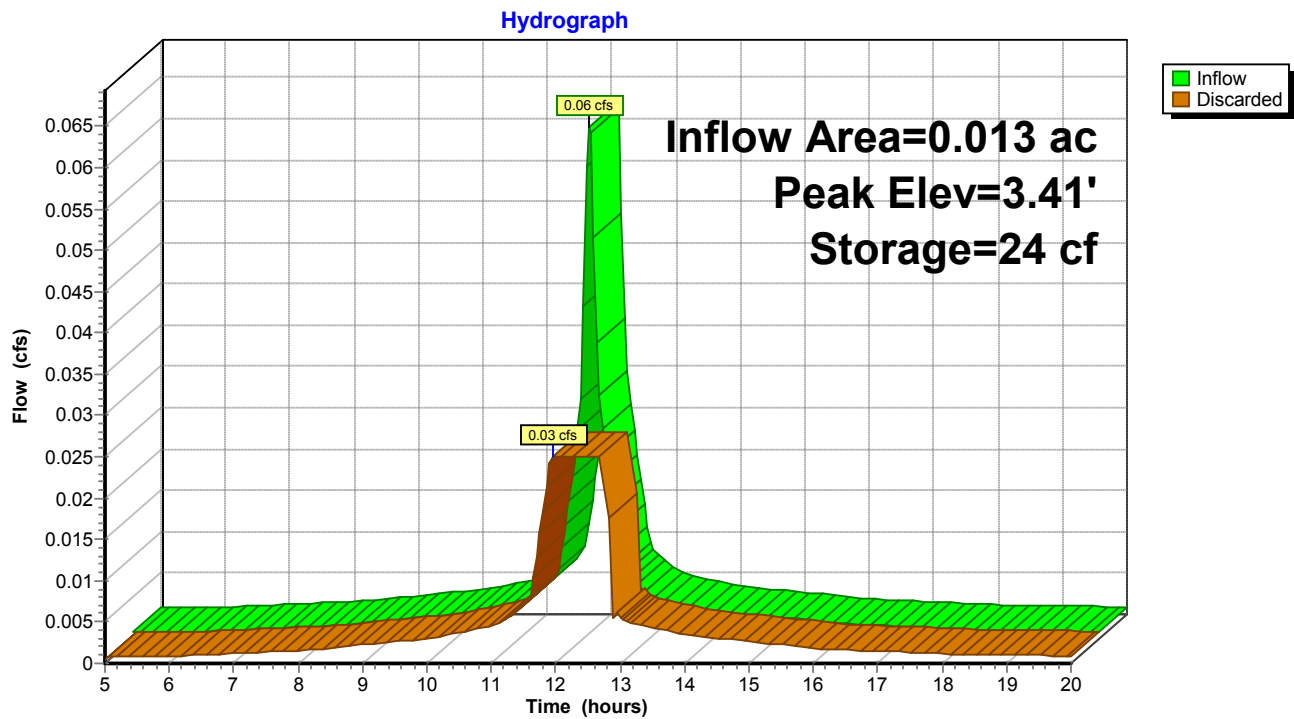
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Type III 24-hr 25-year Storm Event Rainfall=6.20"

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3/26/2020

Pond 9P: Porous Paver (Driveway)



[1120] Proposed Conditions2*Type III 24-hr 25-year Storm Event Rainfall=6.20"*

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Hydrograph for Pond 9P: Porous Paver (Driveway)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)
5.00	0.00	0	3.25	0.00
5.50	0.00	0	3.25	0.00
6.00	0.00	0	3.25	0.00
6.50	0.00	0	3.25	0.00
7.00	0.00	0	3.25	0.00
7.50	0.00	0	3.25	0.00
8.00	0.00	0	3.25	0.00
8.50	0.00	0	3.25	0.00
9.00	0.00	0	3.25	0.00
9.50	0.00	0	3.25	0.00
10.00	0.00	0	3.25	0.00
10.50	0.00	0	3.25	0.00
11.00	0.00	0	3.25	0.00
11.50	0.01	0	3.25	0.01
12.00	0.04	4	3.27	0.03
12.50	0.01	20	3.39	0.03
13.00	0.01	0	3.25	0.01
13.50	0.00	0	3.25	0.00
14.00	0.00	0	3.25	0.00
14.50	0.00	0	3.25	0.00
15.00	0.00	0	3.25	0.00
15.50	0.00	0	3.25	0.00
16.00	0.00	0	3.25	0.00
16.50	0.00	0	3.25	0.00
17.00	0.00	0	3.25	0.00
17.50	0.00	0	3.25	0.00
18.00	0.00	0	3.25	0.00
18.50	0.00	0	3.25	0.00
19.00	0.00	0	3.25	0.00
19.50	0.00	0	3.25	0.00
20.00	0.00	0	3.25	0.00

[1120] Proposed Conditions2

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Type III 24-hr 100-year Storm Event Rainfall=8.89"

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Subcatchment 1S: Remainder of Land

Runoff = 1.18 cfs @ 12.09 hrs, Volume= 0.080 af, Depth> 5.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

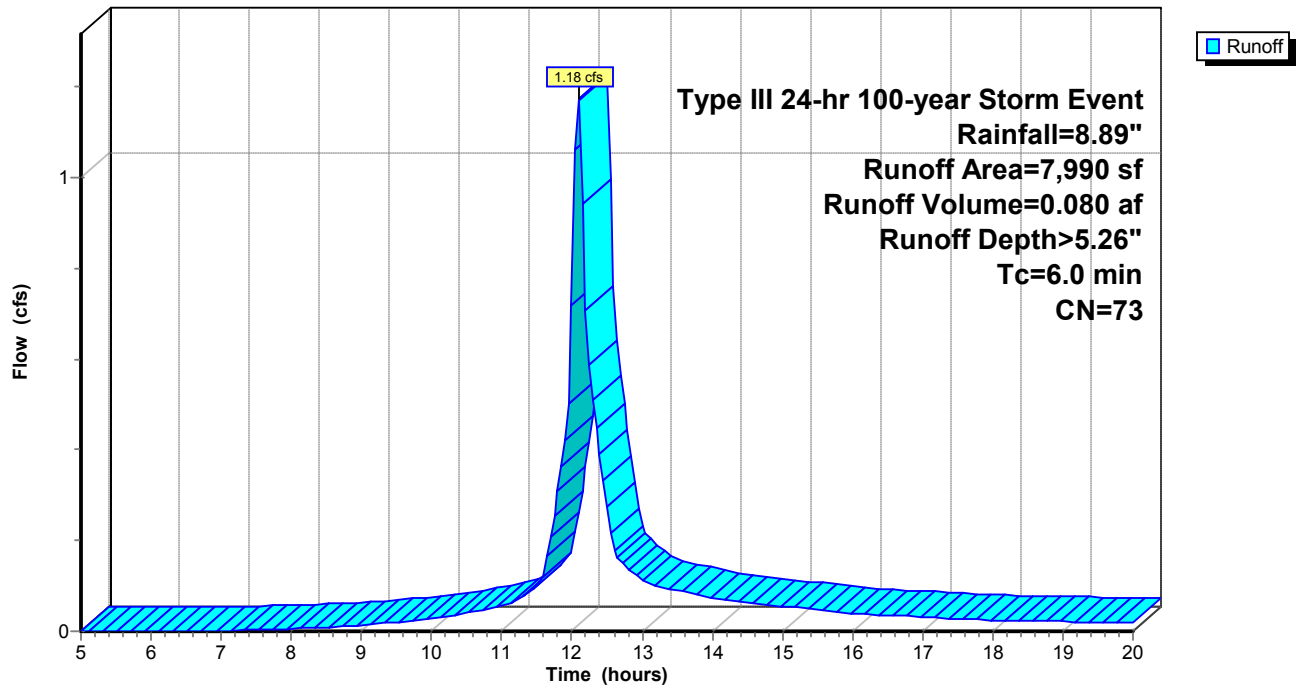
Type III 24-hr 100-year Storm Event Rainfall=8.89"

Area (sf)	CN	Description
1,441	98	Paved parking & roofs
4,706	61	>75% Grass cover, Good, HSG B
1,843	82	Dirt roads, HSG B
7,990	73	Weighted Average
6,549		Pervious Area
1,441		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 1S: Remainder of Land

Hydrograph



[1120] Proposed Conditions2

Type III 24-hr 100-year Storm Event Rainfall=8.89"

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Hydrograph for Subcatchment 1S: Remainder of Land

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.50	0.00	0.00	18.00	8.25	5.03	0.02
5.25	0.54	0.00	0.00	18.25	8.29	5.06	0.02
5.50	0.57	0.00	0.00	18.50	8.32	5.09	0.02
5.75	0.60	0.00	0.00	18.75	8.35	5.12	0.02
6.00	0.64	0.00	0.00	19.00	8.39	5.15	0.02
6.25	0.68	0.00	0.00	19.25	8.42	5.18	0.02
6.50	0.72	0.00	0.00	19.50	8.45	5.21	0.02
6.75	0.76	0.00	0.00	19.75	8.48	5.24	0.02
7.00	0.80	0.00	0.00	20.00	8.51	5.26	0.02
7.25	0.85	0.00	0.00				
7.50	0.90	0.01	0.00				
7.75	0.96	0.01	0.00				
8.00	1.01	0.02	0.01				
8.25	1.07	0.03	0.01				
8.50	1.14	0.04	0.01				
8.75	1.22	0.05	0.01				
9.00	1.30	0.07	0.01				
9.25	1.38	0.10	0.02				
9.50	1.48	0.12	0.02				
9.75	1.57	0.15	0.02				
10.00	1.68	0.19	0.03				
10.25	1.80	0.23	0.03				
10.50	1.92	0.29	0.04				
10.75	2.07	0.35	0.05				
11.00	2.22	0.42	0.06				
11.25	2.41	0.52	0.07				
11.50	2.65	0.65	0.10				
11.75	3.16	0.96	0.26				
12.00	4.44	1.85	0.72				
12.25	5.73	2.87	0.59				
12.50	6.24	3.29	0.27				
12.75	6.48	3.49	0.15				
13.00	6.67	3.65	0.11				
13.25	6.82	3.78	0.10				
13.50	6.97	3.91	0.09				
13.75	7.09	4.02	0.08				
14.00	7.21	4.12	0.07				
14.25	7.32	4.21	0.07				
14.50	7.41	4.30	0.06				
14.75	7.51	4.38	0.06				
15.00	7.59	4.45	0.06				
15.25	7.67	4.52	0.05				
15.50	7.75	4.59	0.05				
15.75	7.82	4.65	0.04				
16.00	7.88	4.70	0.04				
16.25	7.93	4.75	0.04				
16.50	7.99	4.80	0.03				
16.75	8.04	4.84	0.03				
17.00	8.09	4.89	0.03				
17.25	8.13	4.93	0.03				
17.50	8.17	4.96	0.03				
17.75	8.21	5.00	0.03				

[1120] Proposed Conditions2

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Type III 24-hr 100-year Storm Event Rainfall=8.89"

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Subcatchment 2S: Lawn

Runoff = 0.00 cfs @ 12.12 hrs, Volume= 0.000 af, Depth> 1.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

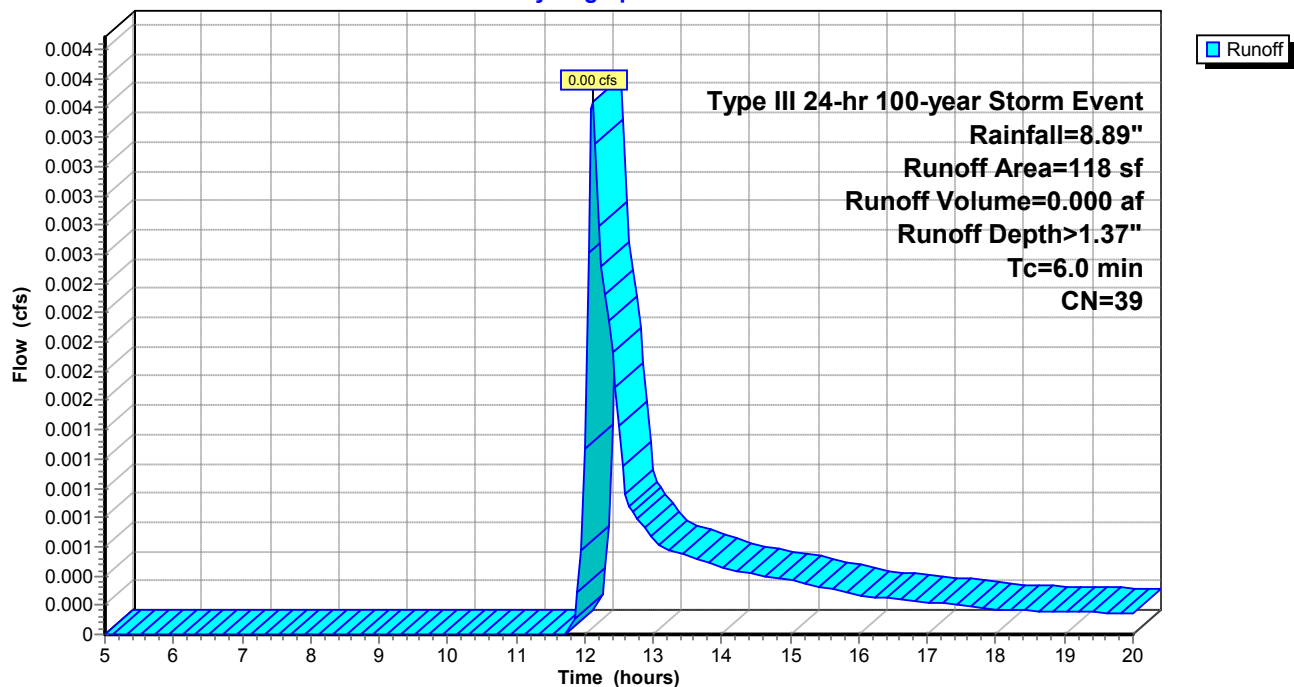
Type III 24-hr 100-year Storm Event Rainfall=8.89"

Area (sf)	CN	Description
118	39	>75% Grass cover, Good, HSG A
118		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 2S: Lawn

Hydrograph



[1120] Proposed Conditions2*Type III 24-hr 100-year Storm Event Rainfall=8.89"*

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Hydrograph for Subcatchment 2S: Lawn

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.50	0.00	0.00	18.00	8.25	1.26	0.00
5.25	0.54	0.00	0.00	18.25	8.29	1.28	0.00
5.50	0.57	0.00	0.00	18.50	8.32	1.29	0.00
5.75	0.60	0.00	0.00	18.75	8.35	1.31	0.00
6.00	0.64	0.00	0.00	19.00	8.39	1.32	0.00
6.25	0.68	0.00	0.00	19.25	8.42	1.34	0.00
6.50	0.72	0.00	0.00	19.50	8.45	1.35	0.00
6.75	0.76	0.00	0.00	19.75	8.48	1.36	0.00
7.00	0.80	0.00	0.00	20.00	8.51	1.38	0.00
7.25	0.85	0.00	0.00				
7.50	0.90	0.00	0.00				
7.75	0.96	0.00	0.00				
8.00	1.01	0.00	0.00				
8.25	1.07	0.00	0.00				
8.50	1.14	0.00	0.00				
8.75	1.22	0.00	0.00				
9.00	1.30	0.00	0.00				
9.25	1.38	0.00	0.00				
9.50	1.48	0.00	0.00				
9.75	1.57	0.00	0.00				
10.00	1.68	0.00	0.00				
10.25	1.80	0.00	0.00				
10.50	1.92	0.00	0.00				
10.75	2.07	0.00	0.00				
11.00	2.22	0.00	0.00				
11.25	2.41	0.00	0.00				
11.50	2.65	0.00	0.00				
11.75	3.16	0.00	0.00				
12.00	4.44	0.10	0.00				
12.25	5.73	0.37	0.00				
12.50	6.24	0.52	0.00				
12.75	6.48	0.59	0.00				
13.00	6.67	0.65	0.00				
13.25	6.82	0.71	0.00				
13.50	6.97	0.76	0.00				
13.75	7.09	0.80	0.00				
14.00	7.21	0.84	0.00				
14.25	7.32	0.88	0.00				
14.50	7.41	0.92	0.00				
14.75	7.51	0.96	0.00				
15.00	7.59	0.99	0.00				
15.25	7.67	1.02	0.00				
15.50	7.75	1.05	0.00				
15.75	7.82	1.08	0.00				
16.00	7.88	1.11	0.00				
16.25	7.93	1.13	0.00				
16.50	7.99	1.15	0.00				
16.75	8.04	1.17	0.00				
17.00	8.09	1.19	0.00				
17.25	8.13	1.21	0.00				
17.50	8.17	1.23	0.00				
17.75	8.21	1.25	0.00				

[1120] Proposed Conditions2

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Type III 24-hr 100-year Storm Event Rainfall=8.89"

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Subcatchment 6S: Driveway

Runoff = 0.09 cfs @ 12.09 hrs, Volume= 0.007 af, Depth> 7.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

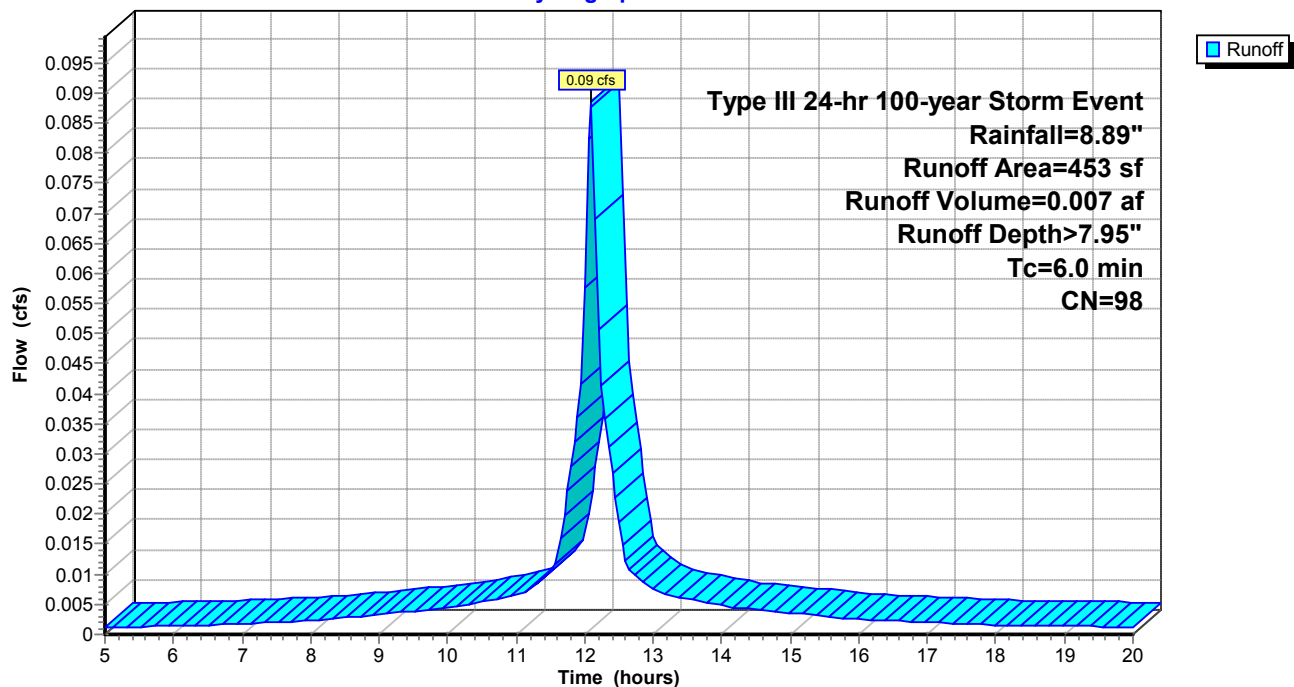
Type III 24-hr 100-year Storm Event Rainfall=8.89"

Area (sf)	CN	Description
453	98	Paved parking & roofs
453		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 6S: Driveway

Hydrograph



[1120] Proposed Conditions2

Type III 24-hr 100-year Storm Event Rainfall=8.89"

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Hydrograph for Subcatchment 6S: Driveway

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.50	0.32	0.00	18.00	8.25	8.01	0.00
5.25	0.54	0.35	0.00	18.25	8.29	8.05	0.00
5.50	0.57	0.38	0.00	18.50	8.32	8.08	0.00
5.75	0.60	0.41	0.00	18.75	8.35	8.11	0.00
6.00	0.64	0.45	0.00	19.00	8.39	8.15	0.00
6.25	0.68	0.48	0.00	19.25	8.42	8.18	0.00
6.50	0.72	0.52	0.00	19.50	8.45	8.21	0.00
6.75	0.76	0.56	0.00	19.75	8.48	8.24	0.00
7.00	0.80	0.60	0.00	20.00	8.51	8.27	0.00
7.25	0.85	0.65	0.00				
7.50	0.90	0.70	0.00				
7.75	0.96	0.75	0.00				
8.00	1.01	0.80	0.00				
8.25	1.07	0.86	0.00				
8.50	1.14	0.93	0.00				
8.75	1.22	1.00	0.00				
9.00	1.30	1.08	0.00				
9.25	1.38	1.16	0.00				
9.50	1.48	1.26	0.00				
9.75	1.57	1.35	0.00				
10.00	1.68	1.46	0.00				
10.25	1.80	1.57	0.00				
10.50	1.92	1.70	0.01				
10.75	2.07	1.84	0.01				
11.00	2.22	2.00	0.01				
11.25	2.41	2.18	0.01				
11.50	2.65	2.42	0.01				
11.75	3.16	2.93	0.02				
12.00	4.44	4.21	0.06				
12.25	5.73	5.49	0.04				
12.50	6.24	6.00	0.02				
12.75	6.48	6.24	0.01				
13.00	6.67	6.43	0.01				
13.25	6.82	6.58	0.01				
13.50	6.97	6.73	0.01				
13.75	7.09	6.86	0.01				
14.00	7.21	6.97	0.00				
14.25	7.32	7.08	0.00				
14.50	7.41	7.18	0.00				
14.75	7.51	7.27	0.00				
15.00	7.59	7.35	0.00				
15.25	7.67	7.43	0.00				
15.50	7.75	7.51	0.00				
15.75	7.82	7.58	0.00				
16.00	7.88	7.64	0.00				
16.25	7.93	7.69	0.00				
16.50	7.99	7.75	0.00				
16.75	8.04	7.80	0.00				
17.00	8.09	7.85	0.00				
17.25	8.13	7.89	0.00				
17.50	8.17	7.93	0.00				
17.75	8.21	7.97	0.00				

[1120] Proposed Conditions2

Type III 24-hr 100-year Storm Event Rainfall=8.89"

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Subcatchment 7S: Walkway

Runoff = 0.02 cfs @ 12.09 hrs, Volume= 0.001 af, Depth> 7.95"

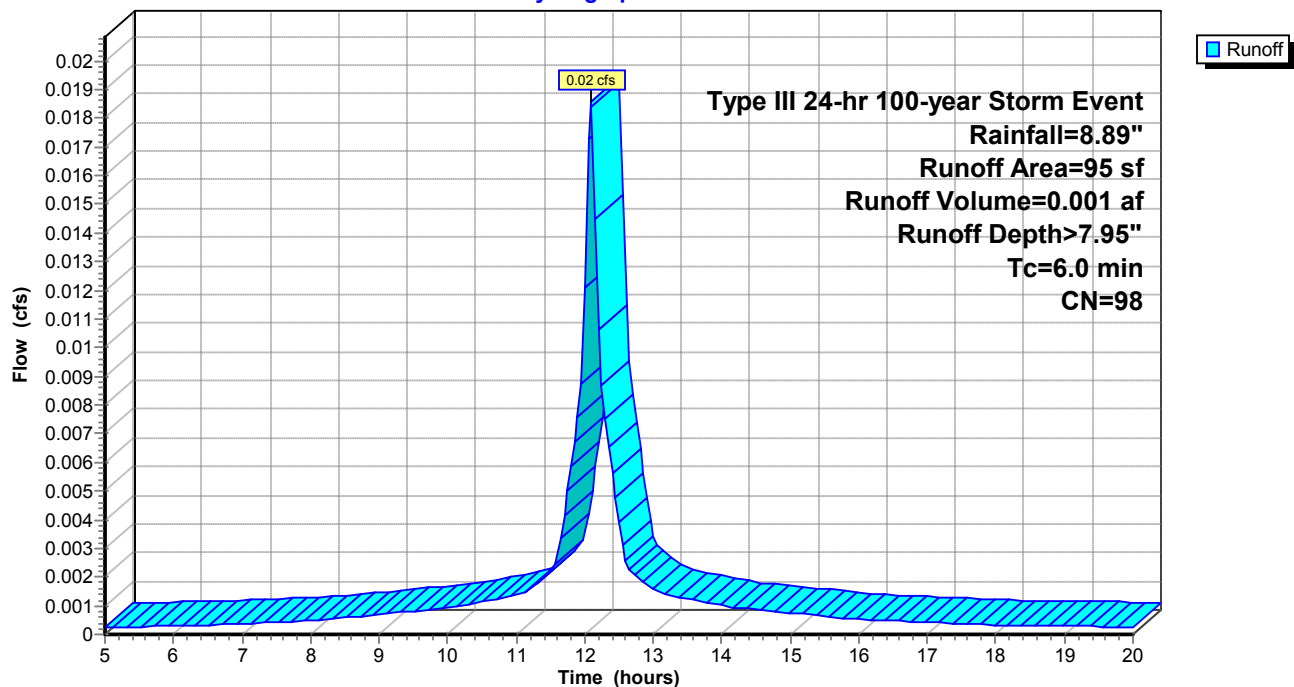
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Storm Event Rainfall=8.89"

Area (sf)	CN	Description
95	98	Paved parking & roofs
95		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 7S: Walkway

Hydrograph



[1120] Proposed Conditions2

Type III 24-hr 100-year Storm Event Rainfall=8.89"

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Hydrograph for Subcatchment 7S: Walkway

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.50	0.32	0.00	18.00	8.25	8.01	0.00
5.25	0.54	0.35	0.00	18.25	8.29	8.05	0.00
5.50	0.57	0.38	0.00	18.50	8.32	8.08	0.00
5.75	0.60	0.41	0.00	18.75	8.35	8.11	0.00
6.00	0.64	0.45	0.00	19.00	8.39	8.15	0.00
6.25	0.68	0.48	0.00	19.25	8.42	8.18	0.00
6.50	0.72	0.52	0.00	19.50	8.45	8.21	0.00
6.75	0.76	0.56	0.00	19.75	8.48	8.24	0.00
7.00	0.80	0.60	0.00	20.00	8.51	8.27	0.00
7.25	0.85	0.65	0.00				
7.50	0.90	0.70	0.00				
7.75	0.96	0.75	0.00				
8.00	1.01	0.80	0.00				
8.25	1.07	0.86	0.00				
8.50	1.14	0.93	0.00				
8.75	1.22	1.00	0.00				
9.00	1.30	1.08	0.00				
9.25	1.38	1.16	0.00				
9.50	1.48	1.26	0.00				
9.75	1.57	1.35	0.00				
10.00	1.68	1.46	0.00				
10.25	1.80	1.57	0.00				
10.50	1.92	1.70	0.00				
10.75	2.07	1.84	0.00				
11.00	2.22	2.00	0.00				
11.25	2.41	2.18	0.00				
11.50	2.65	2.42	0.00				
11.75	3.16	2.93	0.01				
12.00	4.44	4.21	0.01				
12.25	5.73	5.49	0.01				
12.50	6.24	6.00	0.00				
12.75	6.48	6.24	0.00				
13.00	6.67	6.43	0.00				
13.25	6.82	6.58	0.00				
13.50	6.97	6.73	0.00				
13.75	7.09	6.86	0.00				
14.00	7.21	6.97	0.00				
14.25	7.32	7.08	0.00				
14.50	7.41	7.18	0.00				
14.75	7.51	7.27	0.00				
15.00	7.59	7.35	0.00				
15.25	7.67	7.43	0.00				
15.50	7.75	7.51	0.00				
15.75	7.82	7.58	0.00				
16.00	7.88	7.64	0.00				
16.25	7.93	7.69	0.00				
16.50	7.99	7.75	0.00				
16.75	8.04	7.80	0.00				
17.00	8.09	7.85	0.00				
17.25	8.13	7.89	0.00				
17.50	8.17	7.93	0.00				
17.75	8.21	7.97	0.00				

[1120] Proposed Conditions2

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Type III 24-hr 100-year Storm Event Rainfall=8.89"

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Subcatchment 8S: Lawn

Runoff = 0.00 cfs @ 12.12 hrs, Volume= 0.000 af, Depth> 1.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

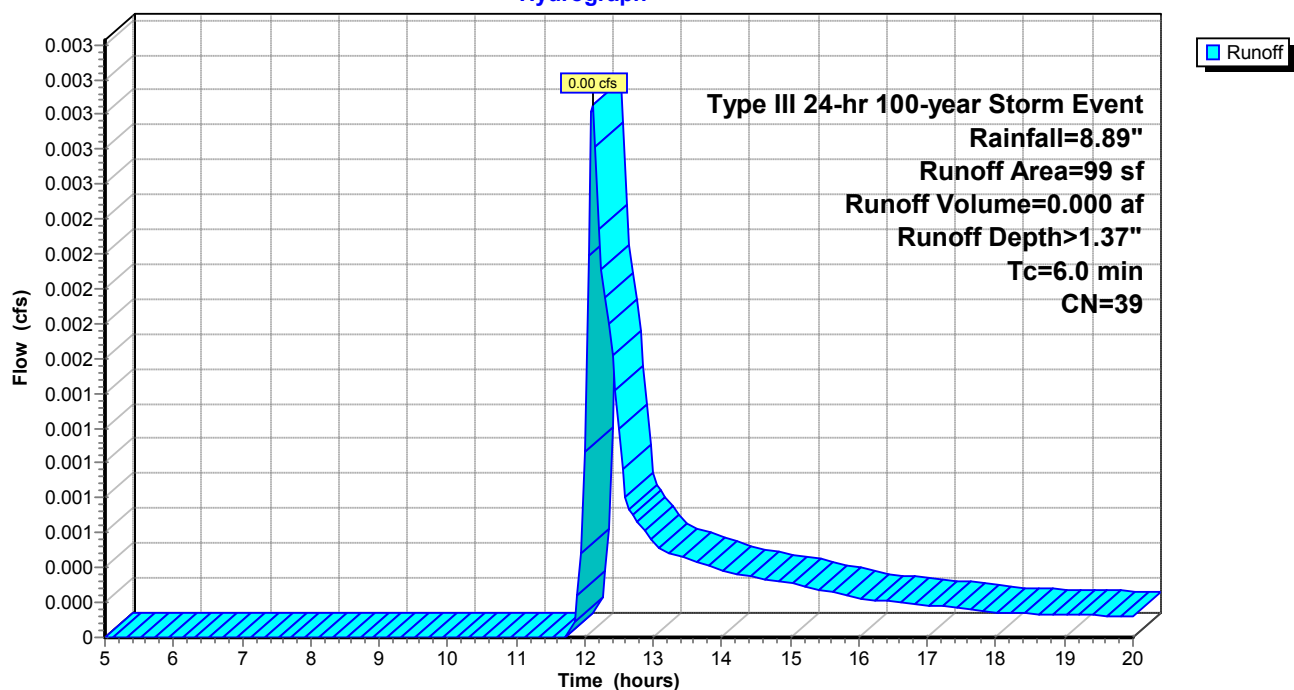
Type III 24-hr 100-year Storm Event Rainfall=8.89"

Area (sf)	CN	Description
99	39	>75% Grass cover, Good, HSG A
99		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 8S: Lawn

Hydrograph



[1120] Proposed Conditions2

Type III 24-hr 100-year Storm Event Rainfall=8.89"

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Hydrograph for Subcatchment 8S: Lawn

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.50	0.00	0.00	18.00	8.25	1.26	0.00
5.25	0.54	0.00	0.00	18.25	8.29	1.28	0.00
5.50	0.57	0.00	0.00	18.50	8.32	1.29	0.00
5.75	0.60	0.00	0.00	18.75	8.35	1.31	0.00
6.00	0.64	0.00	0.00	19.00	8.39	1.32	0.00
6.25	0.68	0.00	0.00	19.25	8.42	1.34	0.00
6.50	0.72	0.00	0.00	19.50	8.45	1.35	0.00
6.75	0.76	0.00	0.00	19.75	8.48	1.36	0.00
7.00	0.80	0.00	0.00	20.00	8.51	1.38	0.00
7.25	0.85	0.00	0.00				
7.50	0.90	0.00	0.00				
7.75	0.96	0.00	0.00				
8.00	1.01	0.00	0.00				
8.25	1.07	0.00	0.00				
8.50	1.14	0.00	0.00				
8.75	1.22	0.00	0.00				
9.00	1.30	0.00	0.00				
9.25	1.38	0.00	0.00				
9.50	1.48	0.00	0.00				
9.75	1.57	0.00	0.00				
10.00	1.68	0.00	0.00				
10.25	1.80	0.00	0.00				
10.50	1.92	0.00	0.00				
10.75	2.07	0.00	0.00				
11.00	2.22	0.00	0.00				
11.25	2.41	0.00	0.00				
11.50	2.65	0.00	0.00				
11.75	3.16	0.00	0.00				
12.00	4.44	0.10	0.00				
12.25	5.73	0.37	0.00				
12.50	6.24	0.52	0.00				
12.75	6.48	0.59	0.00				
13.00	6.67	0.65	0.00				
13.25	6.82	0.71	0.00				
13.50	6.97	0.76	0.00				
13.75	7.09	0.80	0.00				
14.00	7.21	0.84	0.00				
14.25	7.32	0.88	0.00				
14.50	7.41	0.92	0.00				
14.75	7.51	0.96	0.00				
15.00	7.59	0.99	0.00				
15.25	7.67	1.02	0.00				
15.50	7.75	1.05	0.00				
15.75	7.82	1.08	0.00				
16.00	7.88	1.11	0.00				
16.25	7.93	1.13	0.00				
16.50	7.99	1.15	0.00				
16.75	8.04	1.17	0.00				
17.00	8.09	1.19	0.00				
17.25	8.13	1.21	0.00				
17.50	8.17	1.23	0.00				
17.75	8.21	1.25	0.00				

[1120] Proposed Conditions2

Type III 24-hr 100-year Storm Event Rainfall=8.89"

Prepared by Gala Simon Associates

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3/26/2020

Pond 5P: Porous Paver (Walkway)

Inflow Area = 0.004 ac, Inflow Depth > 4.59" for 100-year Storm Event event
 Inflow = 0.02 cfs @ 12.09 hrs, Volume= 0.002 af
 Outflow = 0.01 cfs @ 11.80 hrs, Volume= 0.002 af, Atten= 77%, Lag= 0.0 min
 Discarded = 0.01 cfs @ 11.80 hrs, Volume= 0.002 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 3.74' @ 12.51 hrs Surf.Area= 0 sf Storage= 16 cf

Plug-Flow detention time= 16.5 min calculated for 0.002 af (100% of inflow)
 Center-of-Mass det. time= 16.2 min (766.3 - 750.0)

Volume	Invert	Avail.Storage	Storage Description
#1	3.25'	16 cf	Custom Stage Data Listed below

Elevation (feet)	Cum.Store (cubic-feet)
3.25	0
3.75	16

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	Special & User-Defined Elev. (feet) 3.25 3.26 3.75 Disch. (cfs) 0.000 0.005 0.005

Discarded OutFlow Max=0.01 cfs @ 11.80 hrs HW=3.26' (Free Discharge)
 ↑1=Special & User-Defined (Custom Controls 0.01 cfs)

[1120] Proposed Conditions2

Prepared by Gala Simon Associates

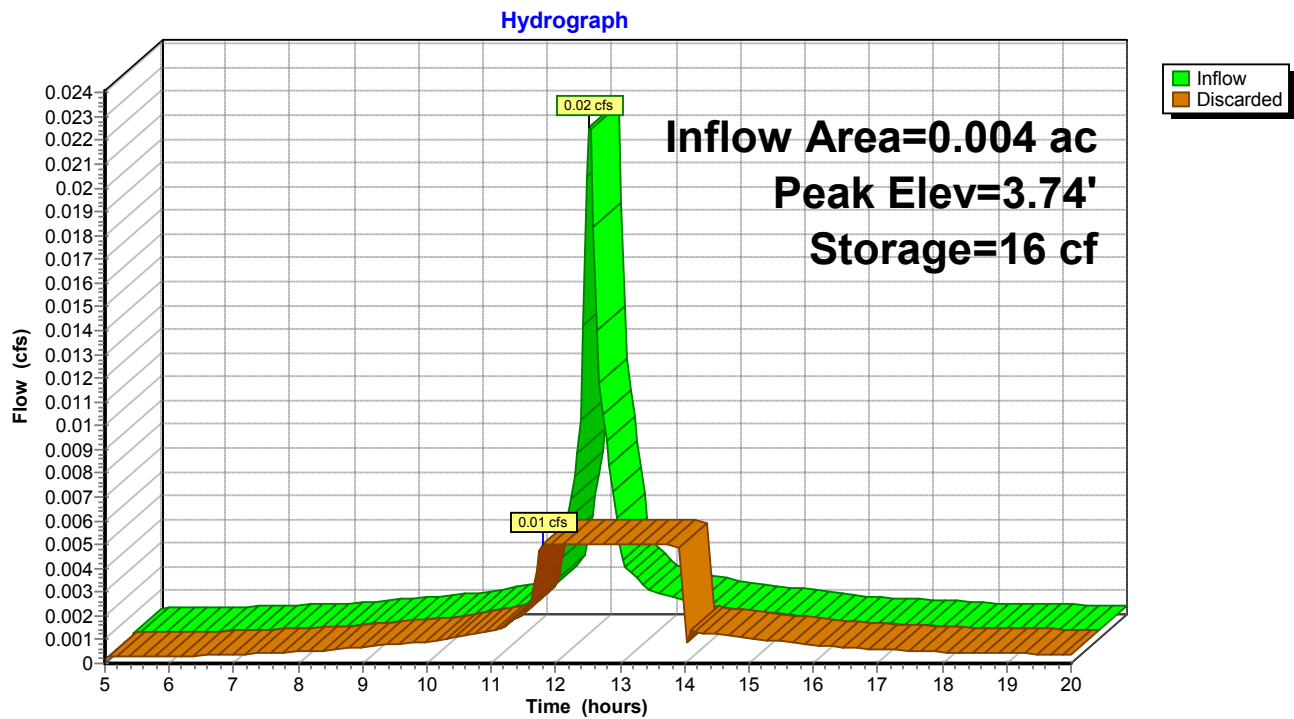
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Type III 24-hr 100-year Storm Event Rainfall=8.89"

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Pond 5P: Porous Paver (Walkway)



[1120] Proposed Conditions2*Type III 24-hr 100-year Storm Event Rainfall=8.89"*

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Hydrograph for Pond 5P: Porous Paver (Walkway)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)
5.00	0.00	0	3.25	0.00
5.50	0.00	0	3.25	0.00
6.00	0.00	0	3.25	0.00
6.50	0.00	0	3.25	0.00
7.00	0.00	0	3.25	0.00
7.50	0.00	0	3.25	0.00
8.00	0.00	0	3.25	0.00
8.50	0.00	0	3.25	0.00
9.00	0.00	0	3.25	0.00
9.50	0.00	0	3.25	0.00
10.00	0.00	0	3.25	0.00
10.50	0.00	0	3.25	0.00
11.00	0.00	0	3.25	0.00
11.50	0.00	0	3.25	0.00
12.00	0.01	3	3.34	0.01
12.50	0.01	16	3.74	0.01
13.00	0.00	12	3.63	0.01
13.50	0.00	6	3.45	0.01
14.00	0.00	0	3.26	0.00
14.50	0.00	0	3.25	0.00
15.00	0.00	0	3.25	0.00
15.50	0.00	0	3.25	0.00
16.00	0.00	0	3.25	0.00
16.50	0.00	0	3.25	0.00
17.00	0.00	0	3.25	0.00
17.50	0.00	0	3.25	0.00
18.00	0.00	0	3.25	0.00
18.50	0.00	0	3.25	0.00
19.00	0.00	0	3.25	0.00
19.50	0.00	0	3.25	0.00
20.00	0.00	0	3.25	0.00

[1120] Proposed Conditions2

Type III 24-hr 100-year Storm Event Rainfall=8.89"

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3/26/2020

Pond 9P: Porous Paver (Driveway)

Inflow Area = 0.013 ac, Inflow Depth > 6.59" for 100-year Storm Event event
 Inflow = 0.09 cfs @ 12.09 hrs, Volume= 0.007 af
 Outflow = 0.03 cfs @ 11.80 hrs, Volume= 0.007 af, Atten= 73%, Lag= 0.0 min
 Discarded = 0.03 cfs @ 11.80 hrs, Volume= 0.007 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 3.64' @ 12.44 hrs Surf.Area= 0 sf Storage= 59 cf

Plug-Flow detention time= 11.5 min calculated for 0.007 af (100% of inflow)
 Center-of-Mass det. time= 11.3 min (748.9 - 737.6)

Volume	Invert	Avail.Storage	Storage Description
#1	3.25'	75 cf	Custom Stage Data Listed below

Elevation (feet)	Cum.Store (cubic-feet)
3.25	0
3.75	75

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	Special & User-Defined Elev. (feet) 3.25 3.26 3.75 Disch. (cfs) 0.000 0.025 0.025

Discarded OutFlow Max=0.03 cfs @ 11.80 hrs HW=3.26' (Free Discharge)
 ↑1=Special & User-Defined (Custom Controls 0.03 cfs)

[1120] Proposed Conditions2

Prepared by Gala Simon Associates

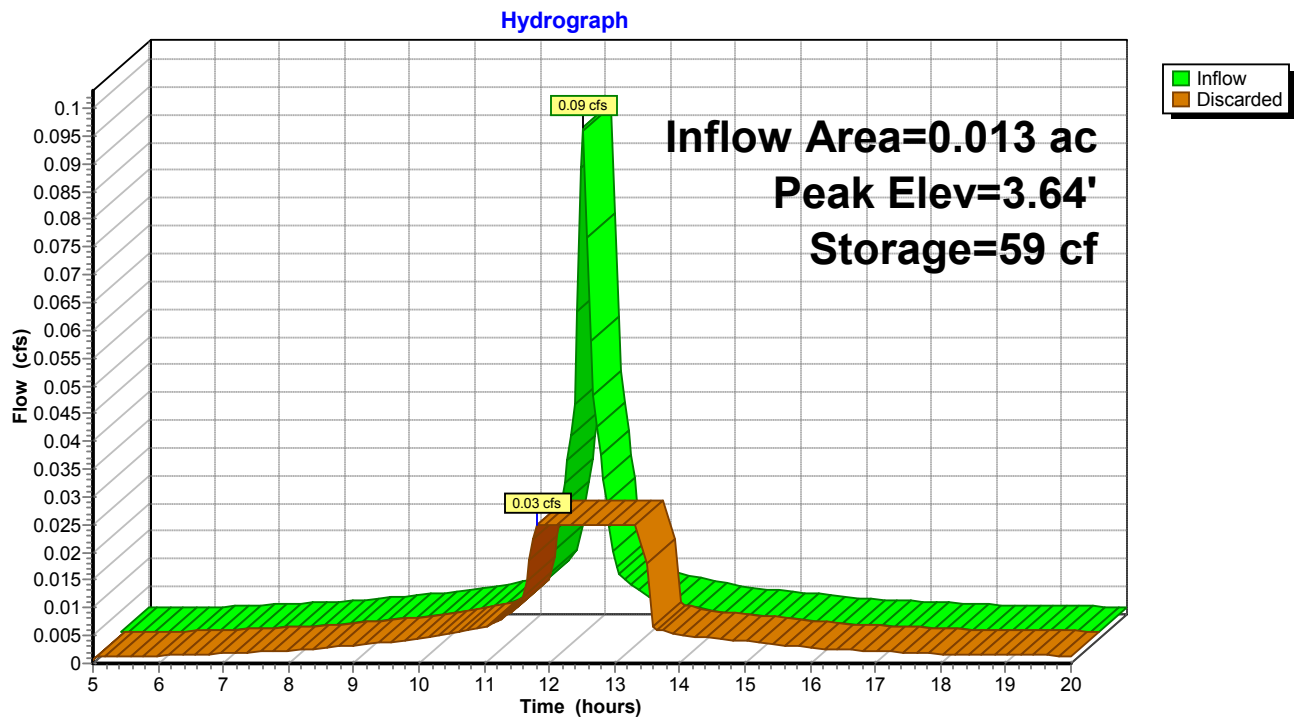
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Type III 24-hr 100-year Storm Event Rainfall=8.89"

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Pond 9P: Porous Paver (Driveway)



[1120] Proposed Conditions2*Type III 24-hr 100-year Storm Event Rainfall=8.89"*

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Hydrograph for Pond 9P: Porous Paver (Driveway)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)
5.00	0.00	0	3.25	0.00
5.50	0.00	0	3.25	0.00
6.00	0.00	0	3.25	0.00
6.50	0.00	0	3.25	0.00
7.00	0.00	0	3.25	0.00
7.50	0.00	0	3.25	0.00
8.00	0.00	0	3.25	0.00
8.50	0.00	0	3.25	0.00
9.00	0.00	0	3.25	0.00
9.50	0.00	0	3.25	0.00
10.00	0.00	0	3.25	0.00
10.50	0.01	0	3.25	0.01
11.00	0.01	0	3.25	0.01
11.50	0.01	1	3.25	0.01
12.00	0.06	12	3.33	0.03
12.50	0.02	58	3.64	0.03
13.00	0.01	34	3.48	0.03
13.50	0.01	2	3.26	0.03
14.00	0.01	0	3.25	0.01
14.50	0.00	0	3.25	0.00
15.00	0.00	0	3.25	0.00
15.50	0.00	0	3.25	0.00
16.00	0.00	0	3.25	0.00
16.50	0.00	0	3.25	0.00
17.00	0.00	0	3.25	0.00
17.50	0.00	0	3.25	0.00
18.00	0.00	0	3.25	0.00
18.50	0.00	0	3.25	0.00
19.00	0.00	0	3.25	0.00
19.50	0.00	0	3.25	0.00
20.00	0.00	0	3.25	0.00

***Operation
and
Maintenance
of
Drainage Systems***

Operation and Maintenance Plan for Drainage Systems

Project Name: 105 Lafayette Street, Arlington, MA

Date: March 26, 2020

Site Location: 105 Lafayette Street
Arlington, Massachusetts

Site Operator:

Owner: Lori Philbin
Contact: 781-646-4101

The following Operation and Maintenance Plan (O & M Plan) has been developed to comply with DEP's Stormwater Management Policy. The responsibilities outlined in the O&M Plan run with ownership of the property.

Pervious Pavement

- Control of sediment is important to maintain the permeability of pervious pavements.
- The performance of the pavements shall be verified by the in-field test methodology described in ASTM C-1701 upon completion of paving activities.

Ensure proper operation of Porous Pavements

- Keep silt and debris from entering onto the pervious pavements
- Pavements shall not be sealed under any circumstances
- Sand or other abrasives for snow or ice conditions shall not be used as they reduce permeability of the pavements
- Observe the pavement surface for signs of sediment or organic debris accumulation
- Use high performance, regenerative air vacuum equipment to clean surfaces. Mechanical brooms shall not be used.

Semiannually inspection for proper functioning and look for:

- Standing water on pavement surface.
- Ruts or deformations in pavement exceeding ½".
- Small random cracks should not be sealed.
- Surrounding vegetation is to be well kept to prevent sedimentation to runoff onto pavements.

Construction Period Erosion and Sediment Control

Prior to start of construction the following measures will need to be in place:

- Stake erosion control barrier on the locations shown on the site plan.
- Contact Engineer for a pre-construction meeting and inspection of the erosion control barrier.
- Install the stabilized construction entrance at the beginning of the driveway to prevent sediment from entering the roadway. Sweep roadway daily during the site construction period and end of day activities. No sediment shall be left on roadway.
- After every major storm event and on a weekly basis, verify erosion control barrier is held in place properly and sediment is retained. Remove accumulated sediment and replace barrier as needed.



Town of Arlington, Massachusetts

Deliberations: 47 Spy Pond Lane Lots 1/A and 2/B (continued from 3/5/2020)

Summary:

MassDEP File #s 091-0318 (Lot 1/A) and 091-0317 (Lot 2/B)

These hearings were closed for public comment during the Commission's 4/2/2020 meeting. The Commission cannot accept public comment regarding these Notices of Intent (NOIs). These NOIs were presented to the Commission on 3/5/2020 and 4/2/2020 with the opportunity for public comment. All materials submitted for these NOIs can be found on the Commission's agenda and minutes page, under the agenda for the 05/07/2020 meeting.

Hearing Summary:

The Superseding Orders of Conditions issued by the Massachusetts Department of Environmental Protection on 12/29/2016 for Lot 1/A and Lot 2/B expired on 12/29/2019. The project sites are therefore currently only permitted under the local Arlington Wetlands Protection Bylaw, and not the Massachusetts Wetlands Protection Act. These Notices of Intent are filed under the Wetlands Protection Act only. The Lot 1/A project proposes to remove an existing impervious driveway and construct a house, partially within the 100-ft Wetlands Buffer. The Lot 2/B project proposes to demolish an existing house and construct a new house, partially within the 100-ft Wetlands Buffer.

ATTACHMENTS:

Type	File Name	Description
Order of Conditions	05072020_DRAFT_47_Spy_Pond_Lane_Lot_1_WPA_Decision.pdf	Draft Lot 1/A OOC
Order of Conditions	05072020_DRAFT_47_Spy_Pond_Lane_Lot_2_WPA_Decision.pdf	Draft Lot 2/B OOC
Notice of Intent	47SPL_Lot_1_NOI_unsigned_redacted.pdf	47SPL Lot 1 NOI Form
Notice of Intent	47SPL_Lot_1_Work_Description.pdf	47SPL Lot 1 Work Description
Notice of Intent	47SPL_Lot_1_Proposed_Plan.pdf	47SPL Lot 1 Plan
Notice of Intent	47SPL_Lot_1_Planting_Plan.pdf	47SPL Lot 1 Planting Plan
Notice of Intent	47SPL_Lot_1_Drainage_Analysis.pdf	47SPL Lot 1 Drainage Analysis
Notice of Intent	47SPL_Lot_1_Construction_O_M_Plan.pdf	47SPL Lot 1 Construction O&M Plan
Notice of Intent	47SPL_Lot_2_NOI_unsigned_redacted.pdf	47SPL Lot 2 NOI Form
Notice of Intent	47SPL_Lot_2_Work_Description.pdf	47SPL Lot 2 Work Description
Notice of Intent	47SPL_Lot_2_Proposed_Plan.pdf	47SPL Lot 2 Plan
Notice of Intent	47SPL_Lot_2_Planting_Plan.pdf	47SPL Lot 2 Planting Plan

▢	Notice of Intent	47SPL_Lot_2_Drainage_Analysis.pdf	47SPL Lot 2 Drainage Analysis
▢	Notice of Intent	47SPL_Lot_2_Vortechs_Design.pdf	47SPL Lot 2 Vortechs Design
▢	Notice of Intent	47SPL_Lot_2_Vortechs_Details.pdf	47SPL Lot 2 Vortechs Details
▢	Notice of Intent	47SPL_Lot_2_Vortechs_TSS_Calculations.pdf	47SPL Lot 2 Vortechs TSS Calculations
▢	Notice of Intent	47_SPL_Lot_2_Construction_O_M_Plan.pdf	47SPL Lot 2 Construction O&M Plan

ARLINGTON CONSERVATION COMMISSION
APPROVAL ORDER OF CONDITIONS – 47 SPY POND LANE – LOT 1(A)
MassDEP File # 091-0318
ONLY UNDER THE WETLANDS PROTECTION ACT
05/07/2020

DOCUMENTS REVIEWED

1. Notice of Intent for work at 47 Spy Pond Lane (Lot 1/Lot A), Arlington, MA, signed July 9, 2019 by Mary Trudeau; Applicant: Scott Seaver of Seaver Construction, Woburn, MA and Representative: Mary Trudeau of Lexington, MA, and including:
 - a. “Description of Work - Notice of Intent Filing”, undated (5 pages).
 - b. June 28, 2016 Drainage Analysis for 47 Spy Pond Lane Lot 1/A conducted by Alan Engineering LLC.
 - c. October 29, 2018 letter from Division of Fisheries and Wildlife and Natural Heritage and Endangered Species Program map of site.
 - d. Construction Period Stormwater Operation and Maintenance Plan, 47 Spy Pond Lane (Lot 1/A), undated (4 pages).
 - e. Post-Construction Construction Stormwater Operation & Maintenance Plan, 47 Spy Pond Lane (Lot 1/A), undated (3 pages).
 - f. MassDEP Superseding Order of Conditions/Approval Cover Letter (3 pages).
 - g. MassDEP Superseding Order of Conditions/Approval Permit and Special Conditions (15 pages).
2. “Proposed Site Plan in Arlington, Mass.” showing Lot 1 by Keenan Survey of Winchester, MA, scale 1:10, dated November 7, 2018, revised June 11, 2019, stamped by James Richard Keenan, P.L.S #30751.
3. “Planting Plan in Arlington, Mass.” showing Lot 1 by Keenan Survey of Winchester, MA, scale 1:10, dated November 7, 2018, revised June 11, 2019, by James Richard Keenan, P.L.S #30751.
4. All relevant documents submitted during the prior hearings and working session(s) **for which the Commission approved this project under the Arlington Bylaw for Wetlands Protection on 10/18/2019** are incorporated by reference.

PROCEEDINGS

The Conservation Commission held hearings on the Notices of Intent filed under the Massachusetts Wetlands Protection Act only on March 5 and April 2, 2020. The Commission closed the public hearing on April 2, 2020, and deliberated on April 16, 2020.

On April 16, 2020, the Commission voted **xxxx to approve** the Project with conditions under the Massachusetts Wetlands Protection Act (the “Act”).

Hearings and deliberations for 47 Spy Pond Lane Lots A(1) and B(2) were performed together; however, two separate decisions were rendered, consistent with the two separate filings for Lot A(1) and Lot B(2).

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The existing dock at the property of Lot A(1) is subject to a separate permit proceeding; however, the Commission did add a Special Condition #60 concerning placement of this dock.

FINDINGS OF FACT AND LAW
UNDER MASSACHUSETTS WETLANDS PROTECT ACT

- A. The Applicant filed a Notice of Intent under the Massachusetts Wetlands Protection Act only (~~version 10/04/2017~~) **because the Superseding Order of Conditions issued in late 2016 had expired**; as such, these findings do not consider the Arlington Bylaw for Wetlands Protection and regulations thereunder.
- B. The Commission approved this project under the Arlington Bylaw for Wetlands Protection **(the "Bylaw")** on 10/18/2019.
- C. The Commissions finds that the property at 47 Spy Pond Lane is currently, and has been for 50 or more continuous years, considered and managed as a single parcel with an existing house (vacant due to a fire) and large paved driveway to the north. The property is approximately 18,300 square feet along the shoreline of Spy Pond. ~~Lot 1/A is approximately 8452 square feet.~~ The existing house and all but 789 (491 lot 1+ 298 lot 2) sq. ft. of the existing expansive driveway are beyond 100 feet from Spy Pond so the **existing** house and most of the existing driveway are outside of the Commission's jurisdiction.
- D. The Applicant represents that the existing historical lot can be divided into two new conforming lots ~~as to~~ **under** zoning. The Applicant thus filed a Notice of Intent (NOI) for each proposed Lot. ~~A separate decision for approval was made for Lot 2(B) in December 2018.~~ Lot 1, also called Lot A, consists of the majority of the existing paved driveway, lawn area, trees and shrubs. **Lot 1/A is approximately 8,452 square feet. A separate decision for approval was made for Lot 2(B) under the Bylaw on 12/21/2018.**
- E. **This Order of Conditions is only for work proposed and allowed on Lot 1/A. Work proposed on Lot 2/B is covered under a different Order of Conditions.**
- F. 47 Spy Pond Lane slopes downward and toward Spy Pond which borders the property on the north. Resource Areas under the Bylaw on or within 100 feet of the property of Lot 1(A) are: Land Under Water Body, Bordering Land Subject to Flooding, Bank, and Wetlands Buffer.
- G. The Commission finds the delineation of the Resource Areas shown on the latest revised plans to be accurate.

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- H. The Town of Arlington holds a sewer easement through the 47 Spy Pond Lane property in which it has placed a sewer line serving the neighborhood. Its location is shown on several plans.
- I. The Commission finds that the Resource Areas on Lot 1(A) are significant to the Resource Area values protected by the Act, as specified in the Regulations for each Resource Area.
- J. Spy Pond is an approximately 100-acre pond that is teeming with wildlife and enjoyed by many Arlington residents. Spy Pond Park is one of the most used parks in Arlington. The Arlington Boys and Girls Club also borders the shoreline and uses the Pond for many activities. The Town over the years has funded efforts to reduce and manage invasive aquatic plant species in Spy Pond. Many groups in Arlington advocate for the preservation of Spy Pond and work to improve its water quality, including the Arlington Conservation Commission, Spy Pond Committee, Friends of Spy Pond Park, and the Arlington Land Trust.
- K. The Notice of Intent for Lot 1(A) proposes construction of a single-family house and related appurtenances including an underground stormwater infiltration device. The house footprint will be approximately 1,757 square feet with the closest point of the dwelling proposed to be approximately 74.4-feet from the edge of Spy Pond. Work proposed also includes grading and construction of a retaining wall next to the house, the addition of a native planting area within 25-feet from the Pond with an 8-foot wide lawn path through the Wetlands Buffer down to the Pond along the edge of the property. A freestanding field stone unmortared and dry laid wall would be constructed 25-feet from the Pond to surround the proposed 25-foot planting area. The Applicant proposes planting two 3-inch diameter-at-breast height (dbh) trees to mitigate the removal of one mature sycamore tree that would have to be removed for construction of the house. The proposal also includes installing an offsite stormwater treatment unit at the corner of Princeton Road and Alfred Road to treat stormwater from an approximately 1.55 acre watershed area **for off-site mitigation, within the Spy Pond watershed.**
- L. The Commission finds that the existing impervious surface on the proposed Lot 1(A) is 491 square feet within the Wetlands Buffer and that the project proposed to increase the impervious surface to 879 square feet, a net increase of 388 square **feet within the 50 – 100 foot portion of the Wetlands Buffer.**¹

¹ The Commission notes that the project will have a pervious driveway and walkway which although these are beyond the Commission's jurisdiction, has agreed to keep as pervious in perpetuity. The Commission notes the Applicant's further reduction of the overall amount of impervious surface on the entire lot but does not take it into account in its decision.

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- M. As for work in the Wetlands Buffer, the Commission finds that the Applicant has demonstrated that there are no available or practical alternatives available with less impact to wetlands resource areas. The Applicant has significantly reduced the footprint of the house from the Applicant's first Notice of Intent filed in 2016, its second Notice of Intent filed in 2017, and its third Notice of Intent filed in 2018. The proposed house is approximately 74.4 feet from the boundary of resource area ~~whereas the 2018 proposed structure would have been only 72.9 feet from the resource area. The distance of the project is approximately 74.4 feet from the pond,~~ compared to the current impervious concrete driveway which is 68 feet from the pond. Therefore, impervious surface will be pushed approximately 6 feet back from the pond through the project. **Thus, as proposed, this project would reduce intrusion into the 100-foot Buffer Zone compared to prior submittals from 2016 through 2018. The proposed project also mitigates more stormwater runoff than needed for the size of the house, restores a 25-ft wide vegetated buffer adding habitat value which currently does not exist, and contributes to a larger watershed's stormwater management with the installation of an offsite stormwater unit that will help improve water quality in Spy Pond. These, among others, are further detailed in Findings M through R, below.**
- N. The two infiltration chambers will have the capacity for an approximately 30% larger house originally proposed in 2017 even though the **current proposed** house will now be smaller. This added capacity further protects the interests of the Act by providing more than sufficient infiltration of roof runoff, meaning there will be less overland stormwater flow across the property into Spy Pond. ~~The existing house has no stormwater infiltration system.~~
- O. During construction, erosion and sediment controls will serve to protect the Wetlands Buffer and Spy Pond resource areas.
- P. The proposed 25-foot wide area of native plantings close to Spy Pond will enhance wildlife habitat by providing more plant material for wildlife foraging, escape cover, over-wintering, and breeding. Currently, this area is lawn. The vegetated buffer will also help to protect the water quality of Spy Pond by slowing down stormwater runoff and bringing greater stability to the bank and areas immediately adjacent to Spy Pond. **The Applicant agrees to construct an unmortered, dry-laid stone wall as a boundary to this vegetative buffer area.**
- Q. The Applicant agrees to pursue a **Chapter 91/**waterways license modification to relocate the dock currently on Lot 1(A), to run perpendicular to **and straddle** the property line between Lot 1(A) and Lot 2(B). Moving the dock to the proposed boundary between Lot 1 and Lot 2 as a shared dock will further protect the bank of Spy Pond by reducing the number of access

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points that may result in bank erosion and sediment entering Spy Pond. **The Applicant further agrees that if the dock cannot be relocated, it shall be removed.**

- R. The Applicant agrees to purchase and install **no later than date tbd** an off-site mitigation stormwater Vortech 2000 water quality treatment unit at the intersection of Princeton Road and Alfred Road. The Town will maintain it per conversations with the Town Engineer.
- S. The Applicant agrees to install a pervious driveway and walkway although outside of the Conservation Commission's jurisdiction. The Applicant agrees to put in a deed restriction that these surfaces are to remain pervious.

CONCLUSION

The Commission finds that the proposed work on Lot 1(A) has the potential to individually and/or cumulatively harm the resource area values protected by the Act if not adequately regulated, but can proceed here given the mitigation provided and implementation of the conditions specified herein.

Based on the testimony at the public hearings, and review of the application materials and the documents listed above submitted during the public hearings, the Commission concludes that the proposed Project ~~will not alter Resource Areas under the Act, the work~~ as conditioned will not have significant or cumulative effects upon the interests of the Resource Area values of the Massachusetts Wetlands Protection Act when the conditions imposed are implemented to protect the Resource Area values. With the conditions contained herein, the Project meets the performance standards in the Act ~~Regulations~~.

For the foregoing reasons, the Commission approves under the Act with the conditions stated herein the applications for work on 47 Spy Pond Lane ~~proposed~~ Lot 1(A).

ADDITIONAL SPECIAL CONDITIONS

In addition to the General Conditions (numbered 1 – 20 above), the Project is subject to the following Additional Special Conditions (under the Act):

Pre-Construction

- 21. Work permitted by this Order and Permit shall conform to the Notice of Intent, the approved plans and documents (listed above), and oral representations (as recorded in hearing minutes) submitted or made by the Applicant and the Applicant's agents or representatives, as well as any plans and other data, information or representations submitted per these Conditions and approved by the Commission.

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22. The provisions of this Order and Permit shall apply to and be binding upon the Applicant and Applicant's assignees, tenants, property management company, employees, contractors, and agents.
23. No work shall be started under this Order until: (a) all other required permits or approvals have been obtained and (b) the appeal period of ten (10) business days from the date of issue of this Order has expired without any appeal being filed and (c) this Order has been recorded in the Registry of Deeds. No work shall be started under this Permit until all other necessary permits or approvals have been obtained.
24. The Applicant shall ensure that a copy of this Order of Conditions and Permit for work, with any referenced plans, is available on-site at all times, and that contractors, site managers, foremen, and sub-contractors understand its provisions.
25. Prior to starting work, the Applicant shall submit to the Commission the names and 24-hour phone numbers of project managers or the persons responsible for site work or mitigation.
26. Before work begins, erosion and sediment controls shall be installed at the limits of the work area and as depicted in the approved plans. These will include a silt fence and 12-inch straw or silt wattle around the entire work area (hay bales are not allowed and silt socks are preferred).
27. The contractor shall contact the Conservation Agent (concomm@town.arlington.ma.us ; 781-316-3012) to arrange for a pre-construction meeting with the on-site project manager to walk through the Order of Conditions, confirm the wash out location, and walk the site to confirm the installation and placement of erosion controls prior to the start of any grading or construction work.
28. At least 21 days prior to construction, the Applicant shall submit revised site plans reflecting any additions, additional details, and changes from the June 11, 2019 plans referenced in this Order of Conditions to the Commission for approval. <<NS: this is vague and ripe for misinterpretation. Better to say "submit revised plans to reflect changes required in Special Conditions x, y, and z">>. <<ES: revised plans as referenced in the Documents Reviewed section of this OOC, like foundation (#32), planting monitoring report for plantings (#36), stormwater monitoring report for stormwater mitigation (#37), invasives management plan (#50), pervious surfaces (#56), retaining wall (#61) or more generally plans related to foundation, plantings, pervious surfaces?>>

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29. At least 21 days prior to the start of **any construction on Lot 1/A**, the Applicant shall submit a signed agreement between the Town of Arlington and Seaver Construction for the acceptance and maintenance of the off-site stormwater treatment unit.
30. The contractor shall provide written Notice of the work start date to the Conservation Agent 48 hours prior to start of work.
31. The Commission, its employees, and its agents shall have the right of entry onto the site to inspect for compliance with the terms of this Order of Conditions and Permit until a Certificate of Compliance has been issued.
32. **Within 30 days of completion of the installation of the concrete foundation**, the Applicant shall submit an as-built plan, stamped by a Professional Engineer or Registered Land Surveyor, to the Commission ~~within 30 days of the foundation of the home being built~~ **showing distances from property lines and Bank and Bordering Vegetated Wetland resource areas.**
33. The Applicant shall submit **no later than July 1, 2020** for Conservation Commission approval a restrictive covenant that any pervious surfaces shown on the plan outside of the Commission's jurisdiction shall remain pervious. The restrictive covenant shall **benefit and** be enforceable by the Conservation Commission **and the Town of Arlington.**
34. The Applicant shall include the Arlington Conservation Commission's Agent on all communication related to the necessary Chapter 91 Licensing in order to move the location of the existing dock to the boundary of Lots 1/A and 2/B. **The Applicant shall not later than September 1, 2020 file a formal request to MassDEP's Waterways Division its request to relocate the dock. If MassDEP does not grant permission to relocate the dock, the Applicant shall remove it.**

Environmental Monitors

35. The Applicant must hire a qualified environmental monitor to be onsite during project construction. The monitor shall submit an electronic report to the Conservation Agent twice a month regarding construction progress and relation to resource areas. The qualified environmental monitor shall also submit an electronic report after every rain event exceeding 0.5 inches of rain **<< SC: do we need to define a duration of time?>>** during the duration of construction to the Conservation Agent regarding the condition of the site during and after the rain event, as well as the status of **erosion controls and any additional measures to address stormwater interventions and erosion controls management issues caused by said rain event.**

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36. The Applicant must hire a qualified **planting** monitor to oversee the installation of the vegetated buffer plantings installation. The qualified monitor shall be a certified landscape architect or landscape designer. A planting report must be submitted to the Conservation Commission within 10 days of the completion of the plant installation. **The planting report shall include <<NS: specify contents such as list of species and quantity actually planted>>. <<ES: The planting report shall include the following plantings: 10x Sweet Pepperbush (*Clethra alnifolia*), 10x Arrowwood (*Viburnum recognitum*), 10x Silky Dogwood (*Cornus amomum*), 5x Witch Hazel (*Hamamelis virginiana*), 3x Shadbush (*Amelanchier canadense*), 30x Lowbush Blueberry (*Vaccinium angustifolia*), and 2x 2.5" caliper Sycamore (*Plantanus occidentalis*).>>**
37. The Applicant must hire a qualified **stormwater** monitor or engineer to oversee the installation of the stormwater infiltration units, permeable pavers, **and off-site stormwater mitigation unit**. A stormwater mitigation report must be submitted to the Conservation Commission within 10 days of the completion of the stormwater infiltration units and permeable pavers installation.

Post-Construction

21. When requesting a Certificate of Compliance for this Order of Conditions, the Applicant must submit a written statement from a Massachusetts professional engineer, registered land surveyor **and landscape architect**, or registered land surveyor certifying that the completed work complies with the plans referenced in this Order, or provide an as-built plan and statement describing any differences.
38. The Applicant must obtain a letter from the Town Engineer that the off-site stormwater mitigation unit was installed properly and its operation and maintenance are acceptable. Other specific requirements for a Certificate of Compliance are detailed in other Special Conditions below in bold text.
39. Certification must be provided that the Order of Conditions will be conveyed to any new owner of the property, so that new owners are apprised of the continuing conditions of this permit. **This shall be a continuing condition that survives the expiration of this permit.**

Dumpsters

40. All dumpsters must be covered at the end of each work day, and no dumpsters will be allowed overnight within the 100-foot Buffer Zone or Adjacent Upland Resource Areas ("AURA") or other Resource Areas.

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Stockpiling

41. No uncovered stockpiling of materials shall be permitted overnight within 100 feet of any waterway or water body.

Erosion

42. Areas that are disturbed by construction and access activities shall as soon as possible be brought to final grade and reseeded and restabilized, and shall be done so prior to the removal of the erosion control barrier.

Equipment

43. No heavy equipment may be stored overnight within 50 feet of the wetland and no refueling or maintenance of machinery shall be allowed within the 100-foot Buffer Zone, and Adjacent Upland Resource Area or within any Resource Area.
44. Arrangements shall be made for any rinsing of tools, equipment, etc. associated with on-site mixing or use of concrete or other materials such that the waste water is disposed of in the concrete wash out station-at least 50 feet from the resource area. In no case may waste water be discharged into or onto Resource Areas on or adjacent to the site. In no case may waste water be placed in storm drains. Any spillage of materials shall be cleaned up promptly.

Sweeping

45. A power-broom must be kept onsite at all times to conduct the daily **workday** street sweeping.
46. Any dirt or debris spilled or tracked onto any paved streets shall be swept up and removed daily with a power-broom.

Dewatering

47. Any dewatering operations shall conform to the following:
- (a) Notify the Conservation Commission that dewatering is required.
 - (b) Any catch basins, drains, and outfalls to be used in dewatering operations shall be cleaned out before operations begin.
 - (c) Any water discharged as part of any dewatering operation shall be passed through filters, on-site settling basins, settling tank trucks, or other devices to ensure that no observable sediments or pollutants are carried into any Resource Area, street, drain or adjacent property.
 - (d) Measures shall be taken to ensure that no erosion or scouring shall occur on public or private property, or on the banks or bottoms of water bodies, as a result of dewatering operations.
 - (e) No dewatering shall occur within 50 feet of the pond.

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Plantings

48. All vegetated buffer plantings shall be native and be installed and maintained according to the standards of the American Association of Nurserymen (AAN) and be maintained in perpetuity. **This shall be a continuing condition that survives the expiration of the permit and shall be included in any Certificate of Compliance as a continuing condition in perpetuity.**
49. At least 21 days prior to plant installation, the Applicant shall submit an invasive plant management plan to the Conservation Commission. The plan shall focus on invasive plant management for the vegetated buffer area. **The plan's recommendations shall be performed by the Applicant and the recommendations shall be a continuing condition that survives the expiration of the permit and shall be included in any Certificate of Compliance as a continuing condition in perpetuity.**
50. The Applicant shall monitor all approved plantings for a period of three years after plant installation. The Applicant shall maintain 100% survival of all installed plantings after the first and second year of monitoring, and maintain a 90% survival of all installed plantings after the third (final) year of monitoring.
51. The Applicant shall maintain 100% survival of the two approved replacement trees. **This shall be a continuing condition that survives the expiration of the permit and shall be included in any Certificate of Compliance as a continuing condition in perpetuity.**
52. The unmortared and dry laid stone wall approved to delineate the vegetated buffer area shall remain as unmortared and dry laid. **This shall be a continuing condition that survives the expiration of the permit and shall be included in any Certificate of Compliance as a continuing condition in perpetuity.**
53. A metal (or other permanent material) sign or marker shall be installed on or along the unmortared wall to demarcate the conservation area. Specifications and a plan for the sign shall be submitted to the Commission for approval 21 days prior to the construction of the wall. **The permanent sign or marker shall be a continuing condition that survives the expiration of the permit and shall be included in any Certificate of Compliance as a continuing condition in perpetuity.**

Chemicals

54. To avoid adding excess nitrogen runoff to Spy Pond, the Applicant shall only treat the lawn with slow release nitrogen fertilizer. Application of this fertilizer cannot occur in

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the summer, or after storm events. Lawn fertilizer shall only be applied twice a year, in spring and fall. No herbicides shall be used to treat invasive or unwanted plants. New plantings shall only be fertilized once, during the initial planting year. No pesticides or rodenticides shall be used to treat pest management issues **within the 100-foot Wetland Buffer**. **This shall be a continuing condition that survives the expiration of the permit and shall be included in any Certificate of Compliance as a continuing condition in perpetuity.**

Pervious Surfaces

55. Pervious surfaces shown on the project plans shall be maintained and not be replaced by impervious surfaces. **This shall be a continuing condition that survives the expiration of the permit and shall be included in any Certificate of Compliance as a continuing condition in perpetuity.**
56. The approved deck shall be constructed to facilitate stormwater infiltration below so that it acts a pervious surface.

Stormwater Management

57. The on-site infiltration system shall be maintained according to the manufacturer best management practices and operations/maintenance plan. The system shall be checked twice a year to ensure compliance with the best management practices and operations/maintenance plan. An annual report shall be submitted to the Conservation Commission and Town Engineer demonstrating that the operation and maintenance of the unit was performed per the manufacturer best management practices. **This shall be a continuing condition that survives the expiration of the permit and shall be included in any Certificate of Compliance as a continuing condition in perpetuity.**
58. The off-site Vortech unit shall be purchased and installed by the Applicant at the Applicant's expense. The Town of Arlington shall take over the maintenance of the unit per the conservations documented with the Town Engineer, only when the Town Engineer is satisfied with the function of the unit. The off-site unit shall be installed and operational within 12 months of the issuance of the Order of Conditions.

Retaining Wall

59. There shall be no retaining wall over the existing sewer easement. Instead, the property shall be gradually graded to meet the existing contours.
60. At least 21 days prior to construction, the Applicant shall submit a revised retaining wall plan to the Conservation Commission Agent for **review and** approval.

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Dock

61. The dock on Lot 1/A must either be relocated to the property boundary between Lots 1/A and 2/B, or fully removed **and abandoned before the Applicant named in this Order sells or conveys** by the time of sale of either Lot 1/A or Lot 2/B.

DRAFT

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DOCUMENTS REVIEWED

1. Notice of Intent for work at 47 Spy Pond Lane (Lot 2/Lot B), Arlington, MA, signed September 18, 2018 by Mary Trudeau; Applicant: Scott Seaver of Seaver Construction, Woburn, MA and Representative: Mary Trudeau of Lexington, MA, and including:
 - a. "Description of Work - Notice of Intent Filing", undated (5 pages).
 - b. June 28, 2016 Drainage Analysis for 47 Spy Pond Lane Lot 2/B conducted by Alan Engineering LLC.
 - c. Vortechs Stormwater System design plan, standard detail plan, estimated net annual TSS reduction calculations, and water quality flow rate calculations.
 - d. October 29, 2018 letter from Division of Fisheries and Wildlife and Natural Heritage and Endangered Species Program map of site.
 - e. Construction Period Stormwater Operation and Maintenance Plan, 47 Spy Pond Lane (Lot 2/B), undated (4 pages).
 - f. Post-Construction Construction Stormwater Operation & Maintenance Plan, 47 Spy Pond Lane (Lot 2/B), undated (3 pages).
 - g. MassDEP Superseding Order of Conditions/Approval Cover Letter (3 pages).
 - h. MassDEP Superseding Order of Conditions/Approval Permit and Special Conditions (15 pages).
2. "Proposed Site Plan in Arlington, Mass." showing Lot 2 by Keenan Survey of Winchester, MA, scale 1:10, dated March 7, 2019, stamped by James Richard Keenan, P.L.S #30751.
3. "Planting Plan in Arlington, Mass." showing Lot 2 by Keenan Survey of Winchester, MA, scale 1:10, dated March 7, 2019, by James Richard Keenan, P.L.S #30751.
4. All relevant documents submitted during the prior hearings and working session(s) for **which the Commission approved this project under the Arlington Bylaw for Wetlands Protection on 12/21/2018** are incorporated by reference.

PROCEEDINGS

The Conservation Commission held hearings on the Notices of Intent filed under the Massachusetts Wetlands Protection Act only on March 5 and April 2, 2020. The Commission closed the public hearing on April 2, 2020, and deliberated on April 16, 2020.

On April 16, 2020, the Commission voted **xxx to approve** the Project with conditions under the Massachusetts Wetlands Protection Act (the "Act").

Hearings and deliberations for 47 Spy Pond Lane Lots A(1) and B(2) were performed together; however, two separate decisions were rendered, consistent with the two separate filings for Lot A(1) and Lot B(2).

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FINDINGS OF FACT AND LAW
UNDER MASSACHUSETTS WETLANDS PROTECT ACT

- A. The Applicant filed a Notice of Intent under the Massachusetts Wetlands Protection Act only ~~(version 10/04/2017)~~ because the **Superseding Order of Conditions issued in late 2016 had expired**; as such, these findings do not consider the Arlington Bylaw for Wetlands Protection and regulations thereunder.
- B. The Commission approved this project under the Arlington Bylaw for Wetlands Protection **(the "Bylaw")** on 12/21/2018.
- C. The Commissions finds that the property at 47 Spy Pond Lane is currently, and has been for 50 or more continuous years, considered and managed as a single parcel with an existing house (vacant due to a fire) and large paved driveway to the north. The property is approximately 18,300 square feet along the shoreline of Spy Pond. The existing house and all but 789 (491 lot 1+ 298 lot 2) sq. ft. of the existing expansive driveway are beyond 100 feet from Spy Pond so the house and most of the existing driveway are outside of the Commission's jurisdiction.
- D. The Applicant represents that the existing historical lot can be divided into two new conforming lots as to **under** zoning. The Applicant thus filed a Notice of Intent (NOI) for each proposed Lot. ~~A separate decision has been made for Lot 1(A).~~ Lot 1, also called Lot A, consists of the majority of the existing paved driveway, lawn area, trees and shrubs. Lot 2, also called Lot B, consists of the existing house, small portion of paved driveway, lawn area, trees and shrubs. **Lot 2/B is approximately 8,784 square feet. A separate decision for approval was made for Lot 1(A) under the Bylaw on 10/18/2019.**
- E. This Order of Conditions is only for work proposed and allowed on Lot 2/B. Work proposed on Lot 1/A is covered under a different Order of Conditions.**
- F. 47 Spy Pond Lane slopes downward and toward Spy Pond which borders the property on the north. Resource Areas under the Act on or within 100 feet of the property of Lot 2(B) are: Land Under Water Body, Bordering Vegetated Wetland ("BVW"), Bordering Land Subject to Flooding, Bank, and Wetlands Buffer.
- G. The Commission finds the delineation of BVW and **other** Resource Areas shown on the **latest** revised plans to be accurate.
- H. The Town of Arlington holds a sewer easement through the 47 Spy Pond Lane property in which it has placed a sewer line serving the neighborhood. Its location is shown on several plans.

Comment [A1]: Chuck: List the "other" resource areas, remove the word other

Comment [A2]: Chuck: Insert the flag numbers

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- I. The Commission finds that the Resource Areas on Lot 2(B) are significant to the Resource Area values protected by the Act, as specified in the Regulations for each Resource Area.
- J. Spy Pond is an approximately 100-acre pond that is **teaming** with wildlife and enjoyed by many Arlington residents. Spy Pond Park is one of the most used parks in Arlington. The Arlington Boys and Girls Club also borders the shoreline and uses the Pond for many activities. The Town over the years has funded efforts to reduce and manage invasive aquatic plant species in Spy Pond. Many groups in Arlington advocate for the preservation of Spy Pond and work to improve its water quality, including the Arlington Conservation Commission, Spy Pond Committee, Friends of Spy Pond Park, and the Arlington Land Trust.
- K. The Notice of Intent and plans for Lot 2(B) proposes demolition of the existing house and construction of a house with a building footprint of approximately 2,080 square feet with the closest point of the dwelling located approximately 90 feet from the pond (10-foot intrusion into the **AURA Wetlands Buffer Zone**) and related appurtenances including an underground stormwater infiltration device. Work also includes grading and construction of retaining walls next to the house, the addition of a native planting area within 25-feet from the Pond, and an 8-foot wide lawn path through the **AURA Wetlands Buffer Zone** down to the Pond along the edge of the property. There will be a field-stone unmortared **and dry-laid wall** wall at 25-feet from the Pond to surround the proposed 25-foot planting area. **The proposal also includes installing an offsite stormwater treatment unit at the corner of Princeton Road and Alfred Road to treatment stormwater from an approximately 1.55 acre watershed area.**
- L. The Commission finds that the existing impervious surface on the proposed 8,784 square foot Lot 2(B) is 298 square feet within the Wetlands Buffer and that the project will reduce the amount of impervious surface to 210 square feet, which will serve to enhance the interests of the Act including pollution prevention, ground water supply, prevention of pollution, and wildlife habitat.[‡]
- M. **The Commission finds that the Applicant has demonstrated that there are no available or practical alternatives available with less impact to wetlands resource areas. The Applicant has significantly reduced the footprint of the house from the first Notice of Intent filed in 2016. The proposed house is now approximately 90-feet from the boundary of the resource**

Comment [A3]: Chuck: Generalized qualifier, please add what the pond is teaming with.

Comment [A4]: Chuck: I think it's only enhancing ground water supply.

Comment [A5]: Chuck: Pollution is mentioned twice. Pollution prevention and prevention of pollution.

Comment [A6]: Chuck: I don't agree that the applicant has demonstrated that there are no available or practical alternatives, can this section be removed?

[‡]The Commission notes that the project will have a pervious driveway and walkway which ~~although these are beyond the Commission's jurisdiction, has agreed to keep as pervious in perpetuity.~~ The Commission notes the Applicant's further reduction of the overall amount of impervious surface on the entire lot but does not take it into account in its decision.

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area. Mitigation measures proposed for the 10-foot intrusion into the Wetland Buffer are detailed in the following Findings M through R, below.

- N. The proposed project mitigates more stormwater runoff than needed for the size of the proposed house. The two infiltration chambers will have the capacity for a larger house originally proposed in 2017 even though the house will now be smaller. This added capacity further protects the interests of the Act by providing more than sufficient infiltration of roof runoff, meaning there will be less overland stormwater flow across the property into Spy Pond. The existing house has no stormwater infiltration system.
- O. During construction, erosion and sediment controls will serve to protect the Wetlands Buffer, BVW, and Spy Pond resource areas.
- P. The proposed 25-foot wide area of native plantings close to Spy Pond will enhance wildlife habitat by providing more plant material for wildlife foraging, escape cover, over-wintering and breeding. Currently, this area is lawn. The vegetated buffer will also help to protect the water quality of Spy Pond by slowing down stormwater runoff and bringing greater stability to the bank and areas immediately adjacent to Spy Pond. The Applicant agrees to construct an unmortered, dry-laid stone wall as a boundary to this vegetative buffer area.
- Q. The Applicant agrees to pursue a waterways license modification to relocate the dock currently on Lot 1(A), to run perpendicular to and straddle the property line between Lot 1(A) and Lot 2(B). Moving the dock to the proposed boundary between Lot 1 and Lot 2 as a shared dock will further protect the bank of Spy Pond by reducing the number of access points that may result in bank erosion and sediment entering Spy Pond.
- R. The Applicant agrees to purchase and install no later than date tdb an off-site mitigation stormwater Vortech 2000 water quality treatment unit at the intersection of Princeton Road and Alfred Road. The Town will maintain it per conversations with the Town Engineer.
- S. The Applicant agrees to install a pervious driveway and walkway although outside of the Conservation Commission's jurisdiction. The Applicant agrees to put in a deed restriction that these surfaces are to remain pervious.

Comment [A7]: Chuck: Hard to understand this, rewrite.

Comment [A8]: Chuck: Is it possible to get a memo from the engineering department to add to the document section?

CONCLUSION

The Commission finds that the proposed work on Lot 2(B) has the potential to individually and/or cumulatively harm the resource area values protected by the Act if not adequately regulated, but can proceed here given that impervious area will be reduced from existing within the Wetlands Buffer, the mitigation provided, and implementation of the conditions specified herein.

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Based on the testimony at the public hearings, and review of the application materials and the documents listed above submitted during the public hearings, the Commission concludes that the proposed Project ~~will not alter Resource Areas under the Act, the work~~ as conditioned will not have significant or cumulative effects upon the interests of the Resource Area values of the Massachusetts Wetlands Protection Act when the conditions imposed are implemented to protect the Resource Area values. With the conditions contained herein, the Project meets the performance standards in the Act ~~Regulations~~.

For the foregoing reasons, the Commission approves under the Act with the conditions stated herein the applications for work on 47 Spy Pond Lane ~~proposed~~ Lot 2(B).

ADDITIONAL SPECIAL CONDITIONS

In addition to the General Conditions (numbered 1 – 20 above), the Project is subject to the following Additional Special Conditions (under the Act):

Pre-Construction

21. Work permitted by this Order and Permit shall conform to the Notice of Intent, the approved plans and documents (listed above), and oral representations (as recorded in hearing minutes) submitted or made by the Applicant and the Applicant's agents or representatives, as well as any plans and other data, information or representations submitted per these Conditions and approved by the Commission.
22. The provisions of this Order and Permit shall apply to and be binding upon the Applicant and Applicant's assignees, tenants, property management company, employees, contractors, and agents.
23. **Work for this project started in November 2019. All project work except for framing and interior work was permitted to continue after it became known that the superseding Order of Conditions has expired. All remaining work cannot resume until:** ~~No work shall be started under this Order until:~~ (a) all other required permits or approvals have been obtained and (b) the appeal period of ten (10) business days from the date of issue of this Order has expired without any appeal being filed and (c) this Order has been recorded in the Registry of Deeds. No work shall be started under this Permit until all other necessary permits or approvals have been obtained.
24. The Applicant shall ensure that a copy of this Order of Conditions and Permit for work, with any referenced plans, is available on site at all times, and that contractors, site managers, foremen, and sub-contractors understand its provisions.

Comment [A9]: Chuck: Work has started this need to be re written to reflect the current status of the project

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25. Prior to **work resuming** ~~starting work~~, the Applicant shall submit to the Commission the names and 24-hour phone numbers of project managers or the persons responsible for site work or mitigation.
26. Before work begins, erosion and sediment controls shall be installed at the limits of the work area. These will include a silt fence and 12-inch straw or silt wattle around the entire work area (hay bales are not allowed and silt socks are preferred).
27. The contractor shall contact the Conservation Agent (concomm@town.arlington.ma.us ; 781-316-3012) to arrange for a pre-construction meeting with the on-site project manager to walk through the Order of Conditions, confirm the wash out location, and walk the site to confirm the installation and placement of erosion controls prior to the start of any grading or construction work **prior to work resuming**.
28. At least 21 days prior to **working resuming** ~~construction~~, the Applicant shall submit revised site plans reflecting any additions, additional details, and changes from the December 21, 2018 plans referenced in this Order of Conditions to the Commission for approval. <<ES: revised plans as referenced in the Documents Reviewed section of this OOC, like foundation (#32), planting monitoring report for plantings (#36), stormwater monitoring report for stormwater mitigation (#37), invasives management plan (#50), pervious surfaces (#56), retaining wall (#61) or more generally plans related to foundation, plantings, pervious surfaces?>> <<05072020: planting, foundation, retaining wall, pervious surfaces>>
29. The contractor shall provide written Notice of the work start date to the Conservation Agent 48 hours prior to ~~start of work~~ **work resuming**.
30. The Commission, its employees, and its agents shall have the right of entry onto the site to inspect for compliance with the terms of this Order of Conditions and Permit until a Certificate of Compliance has been issued.
31. The Applicant shall submit an as-built plan, stamped by a Professional Engineer or Registered Land Surveyor, to the Commission within 30 days of the foundation of the home being built.
32. **Within 30 days of completion of the installation of the concrete foundation, the Applicant shall submit an as-built plan, stamped by a Professional Engineer or Registered Land Surveyor, to the Commission within 30 days of the foundation of the home being built showing distance from property lines and Bank and Bordering Vegetated Wetland resource areas. <<05072020: this was already submitted>>**

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33. The Applicant shall no later than July 1, 2020 submit for Conservation Commission approval a restrictive covenant that any pervious surfaces shown on the plan outside of the Commission's jurisdiction shall remain pervious. The restrictive covenant shall benefit and be enforceable by the Conservation Commission and the Town of Arlington.
34. The Applicant shall include the Arlington Conservation Commission's Agent on all communication related to the necessary Chapter 91 Licensing in order to move the location of the existing dock to the boundary of Lots 1/A and 2/B. The Applicant shall not later than September 1, 2020 file a formal request to MassDEP's Waterways Division its request to relocate the dock. If MassDEP does not grant permission to relocate the dock, the Applicant shall remove it.

Environmental Monitors

35. The Applicant must hire a qualified environmental monitor to be onsite during project construction. The monitor shall submit an electronic report to the Conservation Agent twice a month regarding construction progress and relation to resource areas. The qualified environmental monitor shall also submit an electronic report after every rain event exceeding 0.5 inches of rain <<do we need to specify a duration?>> during the duration of construction to the Conservation Agent regarding the condition of the site during and after the rain event, as well as the status erosion controls and any additional measures to address stormwater management issues caused by said rain event of stormwater interventions and erosion controls.
36. The Applicant must hire a qualified planting monitor to oversee the installation of the vegetated buffer plantings installation. The qualified monitor shall be a certified landscape architect or landscape designer. A planting report must be submitted to the Conservation Commission within 10 days of the completion of the plant installation. The planting report shall include <<specify contents such as list of species and quantity actually planted>> <<ES: The planting report shall include the following plantings: 10x Sweet Pepperbush (*Clethra alnifolia*), 10x Arrowwood (*Viburnum recognitum*), 10x Silky Dogwood (*Cornus amomum*), 5x Witch Hazel (*Hamamelis virginiana*), 3x Shadbush (*Amelanchier canadense*), and 30x Lowbush Blueberry (*Vaccinium angustifolia*).>> <<05072020: report include graphic/plan, list of what was planted, latin/common names, size, quantity>>
37. The Applicant must hire a qualified stormwater monitor or engineer to oversee the installation of the stormwater infiltration units, permeable pavers, and off-site stormwater mitigation unit. The qualified stormwater monitor shall be a certified engineer. A stormwater mitigation report must be submitted to the Conservation

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Commission within 10 days of the completion of the stormwater infiltration units and permeable pavers installation.

Post-Construction

38. When requesting a Certificate of Compliance for this Order of Conditions, the Applicant must submit a written statement from a Massachusetts professional engineer, registered land surveyor **and landscape architect**, or registered land surveyor certifying that the completed work complies with the plans referenced in this Order, or provide an as-built plan and statement describing any differences.

Comment [A10]: Chuck: This section

39. ~~The Applicant must obtain a letter from the Town Engineer that the off-site stormwater unit was installed properly and its operation and maintenance are acceptable. Other specific requirements for a Certificate of Compliance are detailed in other Special Conditions below in bold text.~~

Comment [A11]: Chuck: Operation and Maintenance Plan

40. Certification must be provided that the Order of Conditions will be conveyed to any new owner of the property, so that new owners are apprised of the continuing conditions of this permit. **This shall be a continuing condition that survives the expiration of this permit.**

Dumpsters

41. All dumpsters must be covered at the end of each work day, and no dumpsters will be allowed overnight within the 100-foot Buffer Zone or Adjacent Upland Resource Areas ("AURA") or other Resource Areas.

Stockpiling

42. No uncovered stockpiling of materials shall be permitted overnight within 100 feet of any waterway or water body.

Erosion

43. Areas that are disturbed by construction and access activities shall as soon as possible be brought to final grade and reseeded and restabilized, and shall be done so prior to the removal of the erosion control barrier.

Equipment

44. No heavy equipment may be stored overnight within 50 feet of the wetland and no refueling or maintenance of machinery shall be allowed within the 100-foot Buffer Zone, and Adjacent Upland Resource Area or within any Resource Area.

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45. Arrangements shall be made for any rinsing of tools, equipment, etc. associated with on-site mixing or use of concrete or other materials such that the waste water is disposed of in the concrete wash out station-at least 50 feet from the resource area. In no case may waste water be discharged into or onto Resource Areas on or adjacent to the site. In no case may waste water be placed in stormdrains. Any spillage of materials shall be cleaned up promptly.

Sweeping

46. A power-broom must be kept onsite at all times to conduct the daily **workday street sweeping along the construction entrance and street within the property boundaries**.
47. Any dirt or debris spilled or tracked onto any paved streets shall be swept up and removed daily with a power-broom.

Dewatering

48. Any dewatering operations shall conform to the following:
- a. Notify the Conservation Commission that dewatering is required.
 - b. Any catch basins, drains, and outfalls to be used in dewatering operations shall be cleaned out before operations begin.
 - c. Any water discharged as part of any dewatering operation shall be passed through filters, on-site settling basins, settling tank trucks, or other devices to ensure that no observable sediments or pollutants are carried into any Resource Area, street, drain or adjacent property.
 - d. Measures shall be taken to ensure that no erosion or scouring shall occur on public or private property, or on the banks or bottoms of water bodies, as a result of dewatering operations.
 - e. No dewatering shall occur within 50 feet of the pond.

Plantings

49. All vegetated buffer plantings shall be native and be installed and maintained according to the standards of the American Association of Nurserymen (AAN) and be maintained in perpetuity. **This shall be a continuing condition that survives the expiration of the permit and shall be included in any Certificate of Compliance as a continuing condition in perpetuity.**
50. At least 21 days prior to plant installation, the Applicant shall submit an invasive plant management plan to the Conservation Commission. The plan shall focus on invasive plant management for the vegetated buffer area. **The plan's recommendations shall be performed by the Applicant and the recommendations shall be a continuing condition**

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that survives the expiration of the permit and shall be included in any Certificate of Compliance as a continuing condition in perpetuity.

51. The Applicant shall monitor all approved plantings for a period of three years after plant installation. The Applicant shall maintain 100% survival of all installed plantings after the first and second year of monitoring, and maintain a 90% survival of all installed plantings after the third (final) year of monitoring.
52. The Applicant shall maintain 100% survival of the two approved replacement trees. **This shall be a continuing condition that survives the expiration of the permit and shall be included in any Certificate of Compliance as a continuing condition in perpetuity.**
53. The unmortared and dry laid stone wall approved to delineate the vegetated buffer area shall remain as unmortared and dry laid. **This shall be a continuing condition that survives the expiration of the permit and shall be included in any Certificate of Compliance as a continuing condition in perpetuity.**
54. A metal (or other permanent material) sign or marker shall be installed on or along the unmortared wall to demarcate the conservation area. Specifications and a plan for the sign shall be submitted to the Commission for approval 21 days prior to the construction of the wall. **The permanent sign or marker shall be a continuing condition that survives the expiration of the permit and shall be included in any Certificate of Compliance as a continuing condition in perpetuity.**

Chemicals

55. To avoid adding excess nitrogen runoff to Spy Pond, the Applicant shall only treat the lawn with slow release nitrogen fertilizer. Application of this fertilizer cannot occur in the summer, or after storm events. Lawn fertilizer shall only be applied twice a year, in spring and fall. No herbicides shall be used to treat invasive or unwanted plants. New plantings shall only be fertilized once, during the initial planting year. No pesticides or rodenticides shall be used to treat pest management issues **within the 100-foot Wetland Buffer**. **This shall be a continuing condition that survives the expiration of the permit and shall be included in any Certificate of Compliance as a continuing condition.**

Pervious Surfaces

56. Pervious surfaces shown on the project plans shall be maintained and not be replaced by impervious surfaces. **This shall be a continuing condition that survives the expiration of the permit and shall be included in any Certificate of Compliance as a continuing condition.**

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57. The approved deck shall be constructed to facilitate stormwater infiltration below so that it acts a pervious surface.

Stormwater Management

58. The **on-site** Cultec infiltration system shall be maintained according to the manufacturer best management practices and operations/maintenance plan. The system shall be checked twice a year to ensure compliance with the best management practices and operations/maintenance plan. **This shall be a continuing condition that survives the expiration of the permit and shall be included in any Certificate of Compliance as a continuing condition.**
59. The off-site Vortechincs unit shall be purchased and installed by the Applicant at the Applicant's expense. The Town of Arlington shall take over the maintenance of the unit per the conservations documented with the Town Engineer, only when the Town Engineer is satisfied with the function of the unit. The off-site unit shall be installed and operational within 12 months of the issuance of the Order of Conditions.

Retaining Wall

60. There shall be no retaining wall over the existing sewer easement. Instead, the property shall be gradually graded to meet the existing contours.
61. At least 21 days prior to construction, the Applicant shall submit a revised retaining wall plan to the Conservation Commission Agent for review and approval.

Comment [A12]: Chuck: I though Lot 2(B) also had a retaining wall?

Dock

62. The dock on Lot 1/A must either be relocated to the property boundary between Lots 1/A and 2/B, or fully removed and abandoned before the Applicant named in this Order sells or conveys by the time of sale of either Lot 1/A or Lot 2/B.



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Important:

When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Note:
Before completing this form consult your local Conservation Commission regarding any municipal bylaw or ordinance.

A. General Information

1. Project Location (**Note:** electronic filers will click on button to locate project site):

47 Spy Pond Lane (Lot 1/Lot A)

a. Street Address

Arlington

b. City/Town

02474

c. Zip Code

Latitude and Longitude:

12-4-2

f. Assessors Map/Plat Number

d. Latitude

e. Longitude

g. Parcel /Lot Number

2. Applicant:

Scott

a. First Name

Seaver

b. Last Name

Seaver Construction

c. Organization

215 Lexington Street

d. Street Address

Woburn

e. City/Town

MA

f. State

01801

g. Zip Code

h. Phone Number

i. Fax Number

j. Email Address

3. Property owner (required if different from applicant): ☐ Check if more than one owner

a. First Name

b. Last Name

c. Organization

d. Street Address

e. City/Town

f. State

g. Zip Code

h. Phone Number

i. Fax Number

j. Email address

4. Representative (if any):

Mary

a. First Name

Trudeau

b. Last Name

d. Street Address

e. City/Town

02420

g. Zip Code

h. Phone Number

i. Fax Number

j. Email address

5. Total WPA Fee Paid (from NOI Wetland Fee Transmittal Form):

\$500.00

a. Total Fee Paid

\$ 237.50

b. State Fee Paid

\$ 262.50

c. City/Town Fee Paid



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A. General Information (continued)

6. General Project Description:

Construction of a single family dwelling. Work is within one hundred feet of the statutory Bank of Spy Pond and adjacent Bordering Vegetated Wetlands.

7a. Project Type Checklist: (Limited Project Types see Section A. 7b.)

- | | |
|---|---|
| 1. <input checked="" type="checkbox"/> Single Family Home | 2. <input type="checkbox"/> Residential Subdivision |
| 3. <input type="checkbox"/> Commercial/Industrial | 4. <input type="checkbox"/> Dock/Pier |
| 5. <input type="checkbox"/> Utilities | 6. <input type="checkbox"/> Coastal engineering Structure |
| 7. <input type="checkbox"/> Agriculture (e.g., cranberries, forestry) | 8. <input type="checkbox"/> Transportation |
| 9. <input type="checkbox"/> Other | |

7b. Is any portion of the proposed activity eligible to be treated as a limited project (including Ecological Restoration Limited Project) subject to 310 CMR 10.24 (coastal) or 310 CMR 10.53 (inland)?

1. ☐ Yes ☒ No If yes, describe which limited project applies to this project. (See 310 CMR 10.24 and 10.53 for a complete list and description of limited project types)

2. Limited Project Type

If the proposed activity is eligible to be treated as an Ecological Restoration Limited Project (310 CMR 10.24(8), 310 CMR 10.53(4)), complete and attach Appendix A: Ecological Restoration Limited Project Checklist and Signed Certification.

8. Property recorded at the Registry of Deeds for:

Middlesex

a. County

73606

c. Book

b. Certificate # (if registered land)

227

d. Page Number

B. Buffer Zone & Resource Area Impacts (temporary & permanent)

1. ☒ Buffer Zone Only – Check if the project is located only in the Buffer Zone of a Bordering Vegetated Wetland, Inland Bank, or Coastal Resource Area.
2. ☐ Inland Resource Areas (see 310 CMR 10.54-10.58; if not applicable, go to Section B.3, Coastal Resource Areas).

Check all that apply below. Attach narrative and any supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.



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B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

For all projects affecting other Resource Areas, please attach a narrative explaining how the resource area was delineated.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. <input type="checkbox"/> Bank	1. linear feet	2. linear feet
b. <input type="checkbox"/> Bordering Vegetated Wetland	1. square feet	2. square feet
c. <input type="checkbox"/> Land Under Waterbodies and Waterways	1. square feet	2. square feet
	3. cubic yards dredged	

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
d. <input type="checkbox"/> Bordering Land Subject to Flooding	1. square feet	2. square feet
	3. cubic feet of flood storage lost	4. cubic feet replaced
e. <input type="checkbox"/> Isolated Land Subject to Flooding	1. square feet	
	2. cubic feet of flood storage lost	3. cubic feet replaced
f. <input type="checkbox"/> Riverfront Area	1. Name of Waterway (if available) - specify coastal or inland	

2. Width of Riverfront Area (check one):

☐ 25 ft. - Designated Densely Developed Areas only

☐ 100 ft. - New agricultural projects only

☐ 200 ft. - All other projects

3. Total area of Riverfront Area on the site of the proposed project: _____ square feet

4. Proposed alteration of the Riverfront Area:

a. total square feet _____ b. square feet within 100 ft. _____ c. square feet between 100 ft. and 200 ft. _____

5. Has an alternatives analysis been done and is it attached to this NOI? ☐ Yes ☐ No

6. Was the lot where the activity is proposed created prior to August 1, 1996? ☐ Yes ☐ No

3. ☐ Coastal Resource Areas: (See 310 CMR 10.25-10.35)

Note: for coastal riverfront areas, please complete **Section B.2.f.** above.



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B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

Check all that apply below. Attach narrative and supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

Online Users:
Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. <input type="checkbox"/> Designated Port Areas	Indicate size under Land Under the Ocean, below	
b. <input type="checkbox"/> Land Under the Ocean	1. square feet 2. cubic yards dredged	
c. <input type="checkbox"/> Barrier Beach	Indicate size under Coastal Beaches and/or Coastal Dunes below	
d. <input type="checkbox"/> Coastal Beaches	1. square feet	2. cubic yards beach nourishment
e. <input type="checkbox"/> Coastal Dunes	1. square feet	2. cubic yards dune nourishment
	Size of Proposed Alteration	Proposed Replacement (if any)
f. <input type="checkbox"/> Coastal Banks	1. linear feet	
g. <input type="checkbox"/> Rocky Intertidal Shores	1. square feet	
h. <input type="checkbox"/> Salt Marshes	1. square feet	2. sq ft restoration, rehab., creation
i. <input type="checkbox"/> Land Under Salt Ponds	1. square feet 2. cubic yards dredged	
j. <input type="checkbox"/> Land Containing Shellfish	1. square feet	
k. <input type="checkbox"/> Fish Runs	Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above 1. cubic yards dredged	
l. <input type="checkbox"/> Land Subject to Coastal Storm Flowage	1. square feet	

4. ☐ Restoration/Enhancement

If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.2.b or B.3.h above, please enter the additional amount here.

a. square feet of BVW

b. square feet of Salt Marsh

5. ☐ Project Involves Stream Crossings

a. number of new stream crossings

b. number of replacement stream crossings



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C. Other Applicable Standards and Requirements

- ☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section C and complete Appendix A: Ecological Restoration Notice of Intent – Required Actions (310 CMR 10.11).

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

1. Is any portion of the proposed project located in **Estimated Habitat of Rare Wildlife** as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage and Endangered Species Program (NHESP)? To view habitat maps, see the *Massachusetts Natural Heritage Atlas* or go to http://maps.massgis.state.ma.us/PRI_EST_HAB/viewer.htm.

- a. ☒ Yes ☐ No **If yes, include proof of mailing or hand delivery of NOI to:**

Natural Heritage and Endangered Species Program
Division of Fisheries and Wildlife
1 Rabbit Hill Road
Westborough, MA 01581

2008

b. Date of map

If yes, the project is also subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18). To qualify for a streamlined, 30-day, MESA/Wetlands Protection Act review, please complete Section C.1.c, and include requested materials with this Notice of Intent (NOI); *OR* complete Section C.2.f, if applicable. *If MESA supplemental information is not included with the NOI, by completing Section 1 of this form, the NHESP will require a separate MESA filing which may take up to 90 days to review (unless noted exceptions in Section 2 apply, see below).*

- c. Submit Supplemental Information for Endangered Species Review*

1. ☒ Percentage/acreage of property to be altered:

(a) within wetland Resource Area 0 percent
percentage/acreage

(b) outside Resource Area _____
percentage/acreage

2. ☒ Assessor's Map or right-of-way plan of site

2. ☒ Project plans for entire project site, including wetland resource areas and areas outside of wetlands jurisdiction, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work **

(a) ☒ Project description (including description of impacts outside of wetland resource area & buffer zone)

(b) ☒ Photographs representative of the site

* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review (see <http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/regulatory-review/>). Priority Habitat includes habitat for state-listed plants and strictly upland species not protected by the Wetlands Protection Act.

** MESA projects may not be segmented (321 CMR 10.16). The applicant must disclose full development plans even if such plans are not required as part of the Notice of Intent process.



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C. Other Applicable Standards and Requirements (cont'd)

- (c) ☒ MESA filing fee (fee information available at http://www.mass.gov/dfwele/dfw/nhesp/regulatory_review/ mesa/ mesa_fee_schedule.htm).
Make check payable to "Commonwealth of Massachusetts - NHESP" and **mail to NHESP** at above address

Projects altering 10 or more acres of land, also submit:

- (d) ☐ Vegetation cover type map of site
- (e) ☐ Project plans showing Priority & Estimated Habitat boundaries
- (f) OR Check One of the Following
1. ☐ Project is exempt from MESA review.
Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, http://www.mass.gov/dfwele/dfw/nhesp/regulatory_review/ mesa/ mesa_exemptions.htm; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.)
2. ☐ Separate MESA review ongoing. _____ a. NHESP Tracking # _____ b. Date submitted to NHESP
3. ☐ Separate MESA review completed.
Include copy of NHESP "no Take" determination or valid Conservation & Management Permit with approved plan.
3. For coastal projects only, is any portion of the proposed project located below the mean high water line or in a fish run?
- a. ☐ Not applicable – project is in inland resource area only b. ☐ Yes ☐ No

If yes, include proof of mailing, hand delivery, or electronic delivery of NOI to either:

South Shore - Cohasset to Rhode Island border, and the Cape & Islands:

Division of Marine Fisheries -
Southeast Marine Fisheries Station
Attn: Environmental Reviewer
1213 Purchase Street – 3rd Floor
New Bedford, MA 02740-6694
Email: DMF.EnvReview-South@state.ma.us

North Shore - Hull to New Hampshire border:

Division of Marine Fisheries -
North Shore Office
Attn: Environmental Reviewer
30 Emerson Avenue
Gloucester, MA 01930
Email: DMF.EnvReview-North@state.ma.us

Also if yes, the project may require a Chapter 91 license. For coastal towns in the Northeast Region, please contact MassDEP's Boston Office. For coastal towns in the Southeast Region, please contact MassDEP's Southeast Regional Office.



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Online Users:

Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

C. Other Applicable Standards and Requirements (cont'd)

4. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?
- a. ☐ Yes ☒ No If yes, provide name of ACEC (see instructions to WPA Form 3 or MassDEP Website for ACEC locations). **Note:** electronic filers click on Website.
- b. ACEC
5. Is any portion of the proposed project within an area designated as an Outstanding Resource Water (ORW) as designated in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00?
- a. ☐ Yes ☒ No
6. Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L. c. 131, § 40A) or the Coastal Wetlands Restriction Act (M.G.L. c. 130, § 105)?
- a. ☐ Yes ☒ No
7. Is this project subject to provisions of the MassDEP Stormwater Management Standards?
- a. ☐ Yes. Attach a copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) and check if:
1. ☐ Applying for Low Impact Development (LID) site design credits (as described in Stormwater Management Handbook Vol. 2, Chapter 3)
 2. ☐ A portion of the site constitutes redevelopment
 3. ☐ Proprietary BMPs are included in the Stormwater Management System.
- b. ☒ No. Check why the project is exempt:
1. ☒ Single-family house
 2. ☐ Emergency road repair
 3. ☒ Small Residential Subdivision (less than or equal to 4 single-family houses or less than or equal to 4 units in multi-family housing project) with no discharge to Critical Areas.

D. Additional Information

- ☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section D and complete Appendix A: Ecological Restoration Notice of Intent – Minimum Required Documents (310 CMR 10.12).

Applicants must include the following with this Notice of Intent (NOI). See instructions for details.

Online Users: Attach the document transaction number (provided on your receipt page) for any of the following information you submit to the Department.

1. ☒ USGS or other map of the area (along with a narrative description, if necessary) containing sufficient information for the Conservation Commission and the Department to locate the site. (Electronic filers may omit this item.)
2. ☒ Plans identifying the location of proposed activities (including activities proposed to serve as a Bordering Vegetated Wetland [BVW] replication area or other mitigating measure) relative to the boundaries of each affected resource area.



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D. Additional Information (cont'd)

3. ☒ Identify the method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s), Determination of Applicability, Order of Resource Area Delineation, etc.), and attach documentation of the methodology.
4. ☐ List the titles and dates for all plans and other materials submitted with this NOI.
- Proposed Plan in Arlington, Mass (Lot 1)
- | | | |
|--------------------------------------|----------------------|--------------------------|
| a. Plan Title | Keenan Survey | James R Keenan |
| b. Prepared By | | c. Signed and Stamped by |
| | | 1"=20' |
| d. Final Revision Date | See Notice of Intent | e. Scale |
| f. Additional Plan or Document Title | | g. Date |
5. ☐ If there is more than one property owner, please attach a list of these property owners not listed on this form.
6. ☒ Attach proof of mailing for Natural Heritage and Endangered Species Program, if needed.
7. ☐ Attach proof of mailing for Massachusetts Division of Marine Fisheries, if needed.
8. ☒ Attach NOI Wetland Fee Transmittal Form
9. ☐ Attach Stormwater Report, if needed.

E. Fees

1. ☐ Fee Exempt: No filing fee shall be assessed for projects of any city, town, county, or district of the Commonwealth, federally recognized Indian tribe housing authority, municipal housing authority, or the Massachusetts Bay Transportation Authority.

Applicants must submit the following information (in addition to pages 1 and 2 of the NOI Wetland Fee Transmittal Form) to confirm fee payment:

2. Municipal Check Number

3. Check date

4. State Check Number

5. Check date

6. Payor name on check: First Name

7. Payor name on check: Last Name



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F. Signatures and Submittal Requirements

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the wetlands regulations, 310 CMR 10.05(5)(a).

I further certify under penalties of perjury that all abutters were notified of this application, pursuant to the requirements of M.G.L. c. 131, § 40. Notice must be made by Certificate of Mailing or in writing by hand delivery or certified mail (return receipt requested) to all abutters within 100 feet of the property line of the project location.

1. Signature of Applicant

2. Date

3. Signature of Property Owner (if different)

4. Date

5. Signature of Representative (if any)

6. Date

For Conservation Commission:

Two copies of the completed Notice of Intent (Form 3), including supporting plans and documents, two copies of the NOI Wetland Fee Transmittal Form, and the city/town fee payment, to the Conservation Commission by certified mail or hand delivery.

For MassDEP:

One copy of the completed Notice of Intent (Form 3), including supporting plans and documents, one copy of the NOI Wetland Fee Transmittal Form, and a **copy** of the state fee payment to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery.

Other:

If the applicant has checked the "yes" box in any part of Section C, Item 3, above, refer to that section and the Instructions for additional submittal requirements.

The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.



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NOI Wetland Fee Transmittal Form
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A. Applicant Information

1. Location of Project:

47 Spy Pond Lane (Lot A)

a. Street Address

Arlington

b. City/Town

c. Check number

d. Fee amount

2. Applicant Mailing Address:

Scott

a. First Name

Seaver

b. Last Name

Seaver Construction

c. Organization

215 Lexington Street

d. Mailing Address

Woburn

e. City/Town

MA

f. State

01801

g. Zip Code

h. Phone Number

i. Fax Number

j. Email Address

3. Property Owner (if different):

a. First Name

b. Last Name

c. Organization

d. Mailing Address

e. City/Town

f. State

g. Zip Code

h. Phone Number

i. Fax Number

j. Email Address

B. Fees

Fee should be calculated using the following process & worksheet. ***Please see Instructions before filling out worksheet.***

Step 1/Type of Activity: Describe each type of activity that will occur in wetland resource area and buffer zone.

Step 2/Number of Activities: Identify the number of each type of activity.

Step 3/Individual Activity Fee: Identify each activity fee from the six project categories listed in the instructions.

Step 4/Subtotal Activity Fee: Multiply the number of activities (identified in Step 2) times the fee per category (identified in Step 3) to reach a subtotal fee amount. Note: If any of these activities are in a Riverfront Area in addition to another Resource Area or the Buffer Zone, the fee per activity should be multiplied by 1.5 and then added to the subtotal amount.

Step 5/Total Project Fee: Determine the total project fee by adding the subtotal amounts from Step 4.

Step 6/Fee Payments: To calculate the state share of the fee, divide the total fee in half and subtract \$12.50. To calculate the city/town share of the fee, divide the total fee in half and add \$12.50.

To calculate filing fees, refer to the category fee list and examples in the instructions for filling out WPA Form 3 (Notice of Intent).



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
NOI Wetland Fee Transmittal Form
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

B. Fees (continued)

Step 1/Type of Activity	Step 2/Number of Activities	Step 3/Individual Activity Fee	Step 4/Subtotal Activity Fee
Single Family Dwelling	(1)	\$500.00	\$500.00
Step 5/Total Project Fee:			\$500.00

Step 6/Fee Payments:

Total Project Fee:	\$500.00
	a. Total Fee from Step 5
State share of filing Fee:	\$237.50
	b. 1/2 Total Fee less \$12.50
City/Town share of filing Fee:	\$262.50
	c. 1/2 Total Fee plus \$12.50

C. Submittal Requirements

- a.) Complete pages 1 and 2 and send with a check or money order for the state share of the fee, payable to the Commonwealth of Massachusetts.

Department of Environmental Protection
Box 4062
Boston, MA 02211

- b.) **To the Conservation Commission:** Send the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and the city/town fee payment.

To MassDEP Regional Office (see Instructions): Send a copy of the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and a **copy** of the state fee payment. (E-filers of Notices of Intent may submit these electronically.)

Description of Work

Notice of Intent Filing 47 Spy Pond Lane (Lot 1/Lot A) Arlington, MA

EXISTING CONDITIONS

The lot consists of vacant land located within one hundred feet of Spy Pond. To date, an erosion control barrier has been installed above the Bank of Spy Pond, as well as along the 25 foot no disturb zone. Currently, the site is inactive, but has a dumpster and several stockpiles of earth situated approximately 75 feet from the Bank of the Pond. The following photos characterized this lot on February 17, 2020:





As can be seen in the photos, above, the stockpiles are loosely covered by a tarp, and located well above the future limit of work line. As shown below, the port-o-let for the site, as well as the aforementioned dumpster, are set on this site.



This Notice of Intent is filed under the Massachusetts Wetlands Protection Act, as the Superseding Order of Conditions issued by the Department of Environmental Protection for this project, lapsed in December of 2019. As a result of this permitting issue, work on the site has been at a standstill for several weeks.

WETLANDS DELINEATION

Wetland Resource Areas on the Lot

The wetlands on the property were delineated by Mary Trudeau in the early spring of 2016. Statutory wetlands on, or adjacent to, the property include Bank; Land Under Waterbody; and Bordering Land Subject to Flooding. There is no wetlands vegetation above the Bank of the waterbody on Lot 1, thus there are no Bordering Vegetated Wetlands on the lot. Jurisdictional buffer zones (and the Adjacent Upland Resource Area) have been calculated from the Bank of the waterbody. The wetlands delineation was affirmed in the Superseding Orders of Conditions issued for Lots 1/2 (A/B) in 2016, and through the issuance of Orders of Conditions issued by the Arlington Conservation Commission in 2019.

For the purposes of this filing, the mean annual high water level has been estimated at between elevations (3 and 4). This corresponds to the first discernable break in slope observed at this site. FEMA has determined the 100 year flood elevation to fall along the Bank of the Pond, but does not give a specific elevation on the maps for this site (attached). This delineation was also affirmed in the Superseding Order of Conditions previously issued for the property by DEP, under the Massachusetts Wetlands Protection Act, as well as the subsequent Orders of Conditions issued under the local Arlington wetlands protection bylaw.

WORK INCLUDED IN THE NOTICE OF INTENT

Demolition and Reconstruction of a Paved Surface Associated With A Single Family Dwelling

This work appears to have been substantially completed during the life of the Superseding Order of Conditions that had been issued for this lot in 2016, and expired in late December of 2019.

Construction of a new Single Family Home

The proposed footprint is the same house footprint approved in the Orders of Conditions issued for this project, under the local wetlands bylaw, in 2019. Siting of the proposed house footprint was done with consideration of the existing zoning setbacks, as well as the Arlington Conservation Commissions local wetlands regulations. Extensive offsite and onsite mitigation was approved for this proposal in the Order of Conditions issued by the Conservation Commission under the local bylaw.

The proposed dwelling will be located more than seventy four (74') feet from the waterline, with the closest portion of the proposed deck set at a 71.4 feet from the pond.

MITIGATING MEASURES

Restoration of the 0 to 25 foot Adjacent Upland Resource Area to a naturalized condition:

With the exception of plantings to restore naturalized conditions within the lowest sections of the jurisdictional buffer zone, the application does not include any changes within twenty five feet of the Bank resource area, and proposes no intrusion of the dwelling, or infiltration system, into the 25 to 50 foot buffer zone/Adjacent Upland Resource Area. The application includes a restoration plan designed to remove lawn areas, and restore a woody, thicket type vegetation to the 0 to 25 foot Adjacent Upland Resource Area. This plan includes the planting of a variety of native, woody shrubs within the 0 to 25 foot buffer zone, leaving only an 8 foot wide foot path open between the 25 foot buffer zone line and the waterbody.

Shrubs will be planted at 6'-10' foot centers, and will consist of the following varieties of woody plants:

- (10) Arrowwood(*Viburnum recognitum*) (3' - 4' height)(6' foot on center)
- (10) Sweet Pepperbush (*Clethra alnifolia*) (3' – 4'height) (6' on center)
- (10) Silky Dogwood (*Cornus amomum*) (3' – 4' height) (8' on center)
- (3) Shadbush (*Aronia intermedia*) (3' - 5' height) (6' – 8' on center)

- (5) Witch Hazel (*Hamamelis virginiana*) (4-6' height) (10-12' on center)
- (30) Lowbush Blueberry (*Vaccinium angustifolia*) (1-2' height) (2-3 foot on center)

Shrubs will be planted in groups of like plants, with the Lowbush Blueberry set just above the Bank of the Pond. The area will not be mowed, and will be allowed to regenerate as a thicket type buffer above the Bank of Spy Pond. This planting plan has been reviewed by the NHESP program and a letter issued stating that the plan as proposed will not result in a taking of a protected species.

Construction of a Free Standing, Un-Mortared Stone Wall 25 Feet from the Bank of Spy Pond:

The applicant will construct a free standing, field stone wall, with a height of at least 2.5 feet along the 25 foot buffer zone. The wall will begin 2 feet to the south of the northern property line, and run southerly to the edge of the 8 ' foot wide pedestrian walkway straddling the property line between Lots 1 and 2. The wall will function primarily as a demarcation of the newly restored 0-25 foot Adjacent Upland Area, but will be constructed with small voids and openings to enhance wildlife habitat.

Use of Retaining Walls to Minimize Grading and Filling on Site:

Retaining walls are proposed perpendicular to the proposed dwelling to minimize grading changes on the property. The retaining walls will be engineered block walls, designed to allow for grade changes without adding fill materials to the lot.

Relocation of Existing Dock

The project locus currently has a small wooden dock, currently located on the northern bank of the pond on Lot 1. The applicant agrees to pursue a waterways license modification to relocate the dock to run perpendicular to the property line between lots 1 and 2. The dock will be aligned with the proposed walking path, proposed as straddling the lot line between the lots.

Storm Water Management Mitigation

On-Site:

The proposed site plan includes full mitigation for the increased surface water flows and impervious surfaces on the site. The proposal includes a subsurface infiltration system designed to capture and infiltrate roof runoff, via a closed gutter system. This mitigation is proposed to be located outside of the 0 to 50 foot buffer zone, and provides both infiltration through the inherent recharge capacity, as well as a reduction in both peak flows and volume of overland storm water flows resulting from the proposed development. The infiltration system, has been conservatively over sized, and will result in reduced rates and volumes of stormwater runoff, when compared to the existing conditions on site as well as the proposed conditions. (The oversized system was designed and sized to accommodate the original foot print of the home proposed for this lot, and has not been reduced in size for the currently proposed footprint. This results in approximately 28 percent excess capacity within the system for each of the design storm events.) The oversizing of this system also fully mitigates for the proposed additional impervious surfaces proposed in this Notice of Intent filing.

Off-Site

While traditional mitigation relates directly to the proposed impact of a project, Seaver Construction is proposing to retrofit a Vortechincs 2000 water quality treatment unit into the Town of Arlington's storm water drainage system. This improvement will benefit the resource area, ie Spy Pond, and will mitigate for the sediment generated by 1.55 acres of impervious surface located in the Spy Pond watershed. This decision to proposed off site mitigation reflected the extensive on site mitigation currently proposed, and the inability to provide additional meaningful on site mitigation for the proposed redevelopment. The Vortechincs unit is a proprietary storm water treatment device with a proven, superior record of sediment removal from storm water flows. This unit is proposed as a "holistic" mitigation for the increased impervious surface proposed through the development of Lot 1. While it does not directly mitigate for work on Lot 1, it provides mitigation to the waterbody below Lot 1, improving the quality of the resource area.

Through discussions with the Town Engineer, the project Engineer, the Conservation Commission as well as representatives from Vortechincs, this system was determined to be capable of treating road runoff discharged from a 1.55 acre watershed of impervious surfaces located within Pond View and Princeton Roads. The structure will provide removal of suspended solids, improving the result discharges to Spy Pond.

The estimate cost of the storm water unit is \$16,338 delivered to the site. The cost of installation is estimated to bring the value of the mitigation to \$25,000 to \$30,000 dollars. Seaver Construction is requesting that the Commission allow the previously offered gift of \$5000 dollars be applied to expenditures over \$25,000, with any residual funds donated back to the Commission for use in environmental protection.

Construction of a Permeable Driveway:

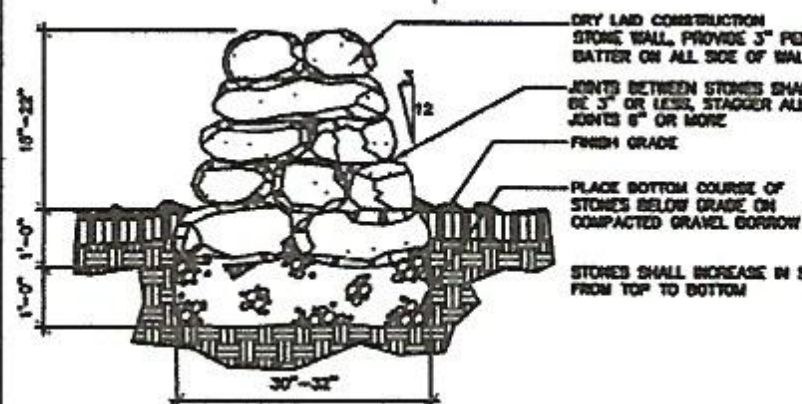
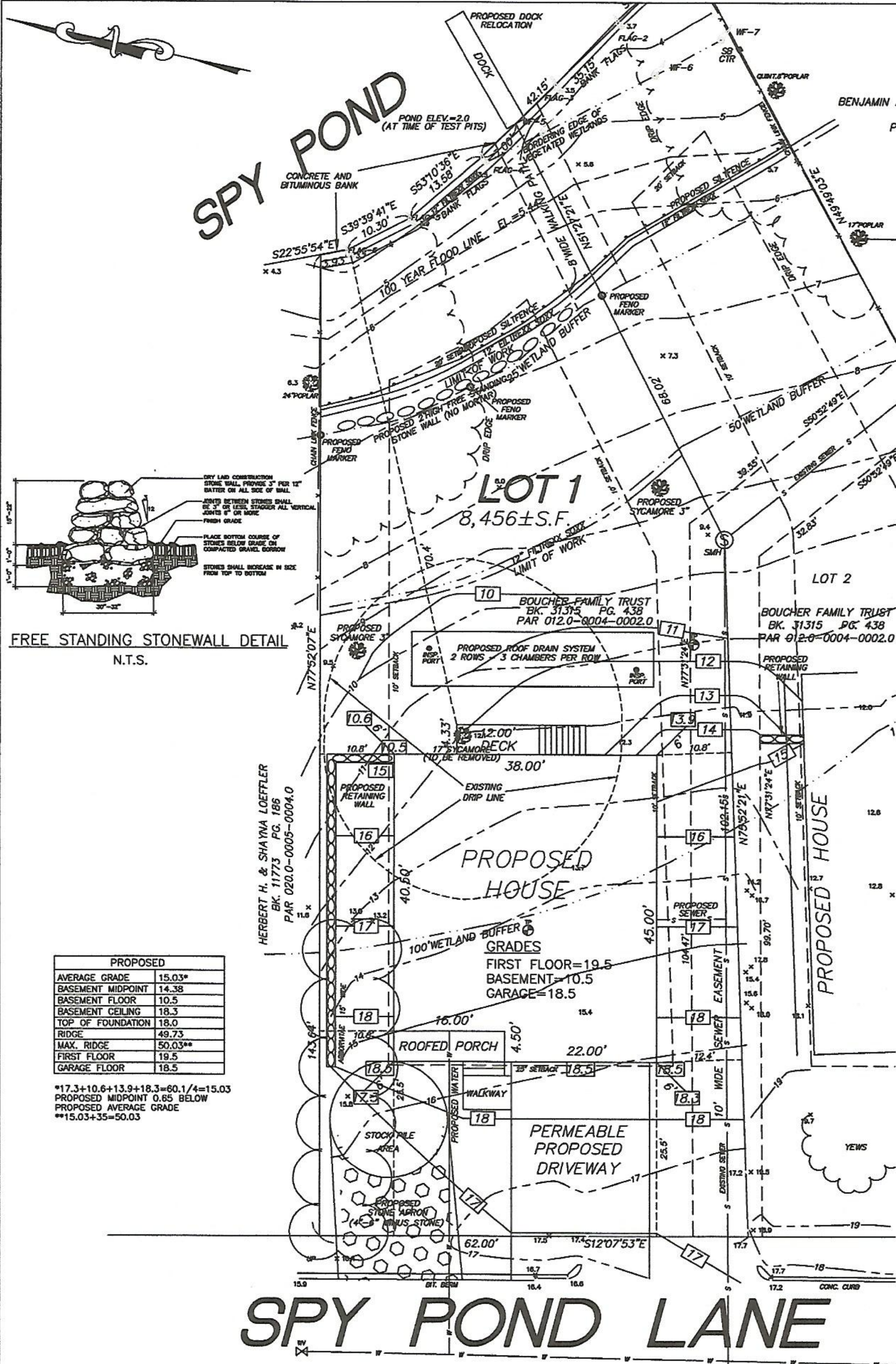
Seaver Construction has agreed to install a permable driveway surface between Spy Pond Lane and the new garage entrance. While this work is non jurisdictional as the driveway is located more than one hundred feet from Spy Pond, the driveway is within the watershed of Spy Pond. The infiltration and recharge area associated with this type of surface is generally considered an environmental benefit.

Installation and Maintenance of Erosion and Sedimentation Controls

Prior to any construction on the site, the limit of work line will be created through the use of a staked line of siltation control fencing set with a row of 12 inch diameter filter soxx filled with composted wood mulch. The controls will be used to insulate the various work areas from the down gradient wetlands, and will be maintained throughout the construction process. It is expected that a filter soxx will be set along the 25 foot buffer zone. As work areas vary during the construction, additional check dams and barriers may need to be added to protect recently graded areas. A detail of the installation has been included in the site plans for the project.

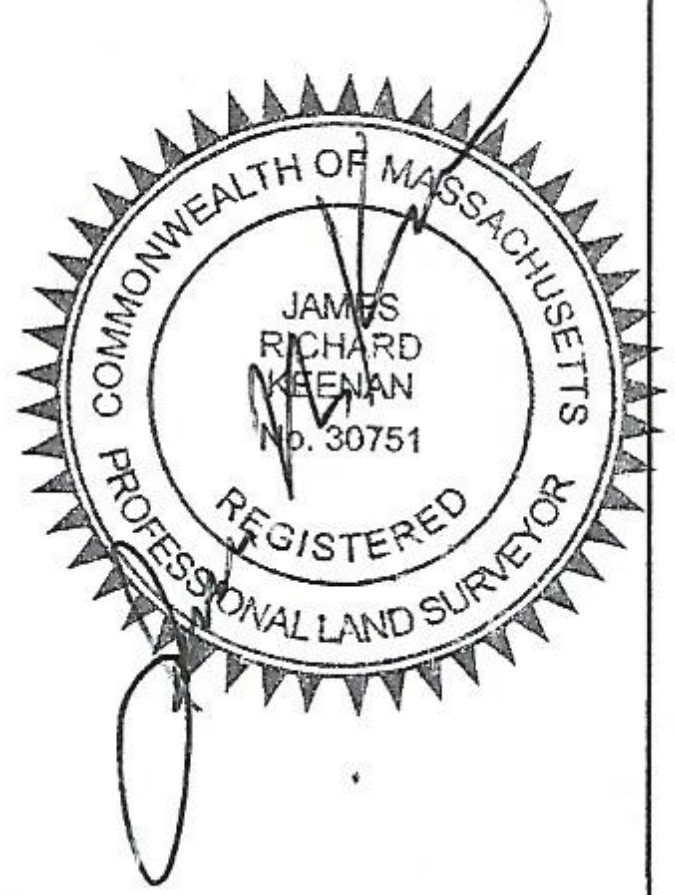
Stockpile areas will be established above the jurisdictional buffer zone. While the proposed foundation work will result in temporary or short term stockpiles of earth materials, the applicant will have erosion controls between stockpiles and the remnants of the existing grassed lawn area between the work area and the vegetated wetlands. Stockpiles will be bounded by staked straw bales or wattles, and excess soil materials will be hauled from the site. The surface of the work

area will be loamed, planted and/or hydro seeded at the completion of the construction, and erosion controls maintained throughout the winter months.



PROPOSED	
AVERAGE GRADE	15.03*
BASEMENT MIDPOINT	14.38
BASEMENT FLOOR	10.5
BASEMENT CEILING	18.3
TOP OF FOUNDATION	18.0
RIDGE	49.73
MAX. RIDGE	50.03**
FIRST FLOOR	19.5
GARAGE FLOOR	18.5

* $17.3+10.6+13.9+18.3=60.1/4=15.03$
 PROPOSED MIDPOINT 0.65 BELOW
 PROPOSED AVERAGE GRADE
 ** $15.03+35=50.03$



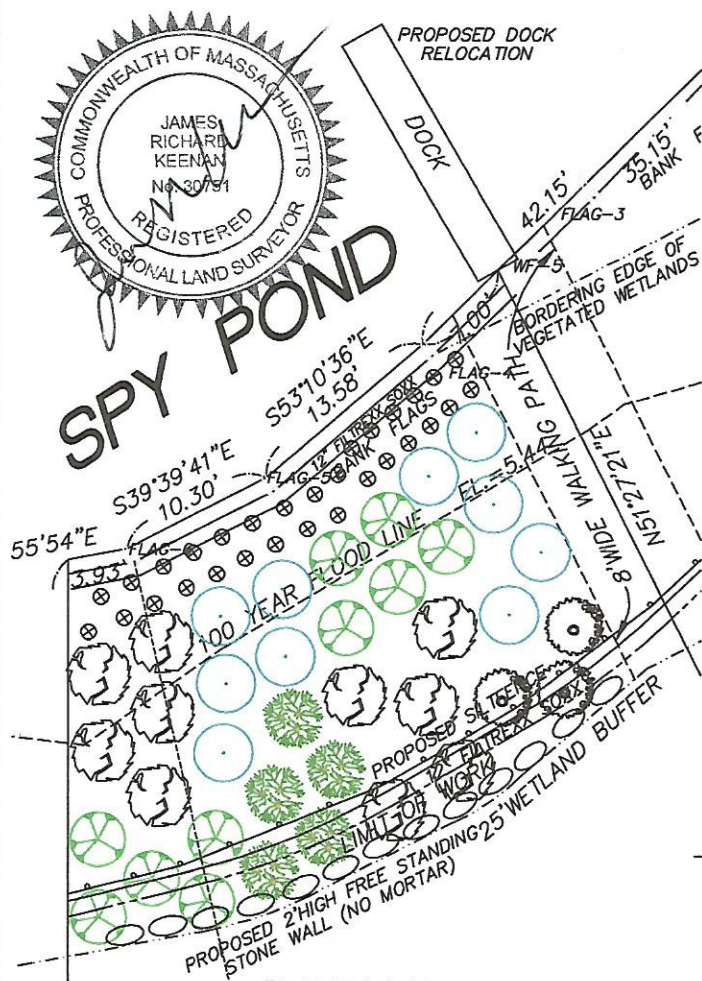
PROPOSED SITE PLAN
 IN
 ARLINGTON, MASS.
 SCALE: 1 IN. = 10 FT. NOVEMBER 7, 2018
 KEENAN SURVEY
 8 WINCHESTER PLACE, SUITE 208
 WINCHESTER, MASS. 01890
 781-729-4213

I CERTIFY THAT THE BUILDINGS ARE
 LOCATED AS SHOWN AND THAT THIS
 PLOT PLAN IS THE RESULT OF AN
 INSTRUMENT SURVEY.

REVISED: DECEMBER 10, 2019
 REVISED: OCTOBER 25, 2019
 REVISED: JUNE 27, 2019
 REVISED: JUNE 11, 2019

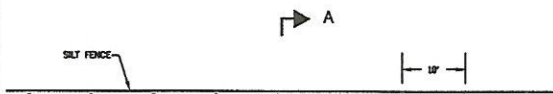
NO.	SYMBOL	SPECIES	HEIGHT	SIZE
(10)	⑦	SWEET PEPPERBUSH (CLETHRA ALNIFOLIA)	3'-4' HIGH	80C
(10)	⑧	ARROWWOOD (VIBURNUM REDONTUM)	3'-4' HIGH	80C
(10)	⑨	SILKY DOGWOOD (CORNUS AMOMUM)	3'-4' HIGH	80C
(10)	⑩	BITCH HAZEL (PANEHELOS VERBANA)	6'-8' HIGH	80C
(10)	⑪	SHADBLOW (AMELANCHIER CANADENSIS)	4'-6' HIGH	80C
(30)	⑫	LOWBUSH BLUEBERRY (VACCINIUM ANGLUSTRIUM)	12" HIGH	80C
(20)	⑬	SYCAMORE (PLATANUS OCCIDENTALIS)	2.5" CALIPER @ 20' TALL	80C

SEE DETAIL

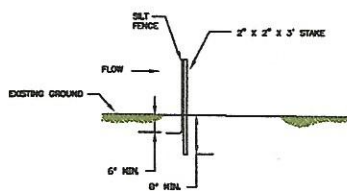


DETAIL

1"=4'

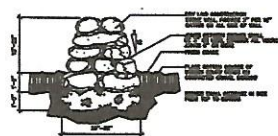


PLAN VIEW



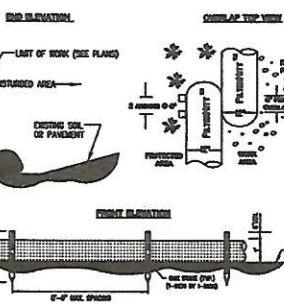
SECTION A-A

SILT FENCE PLAN



FREE STANDING STONEWALL DETAIL

N.T.S.

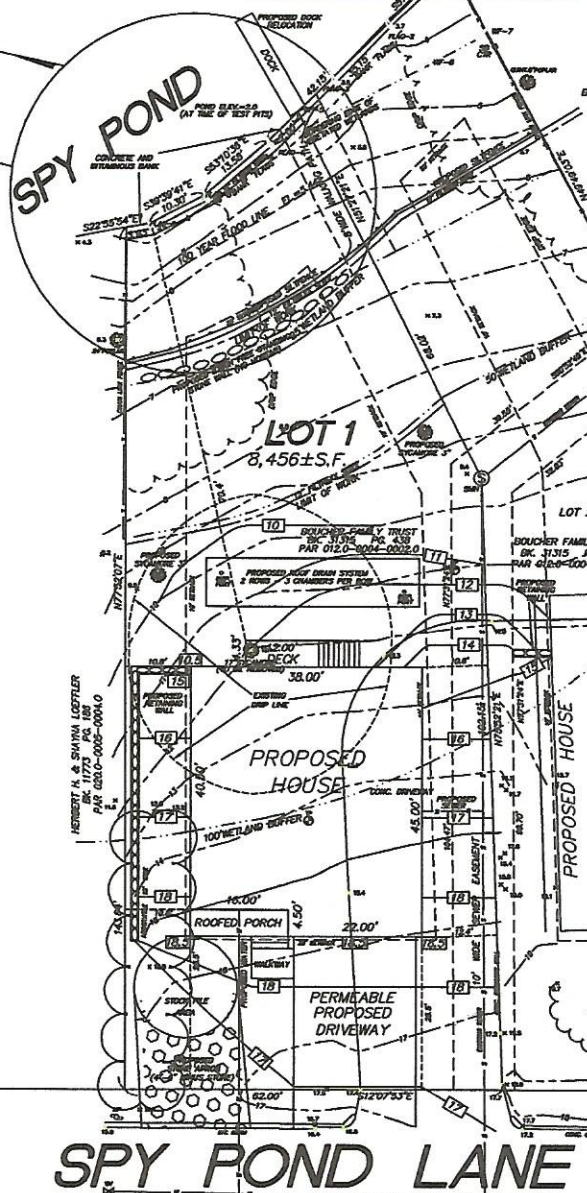


EROSION CONTROL DETAIL

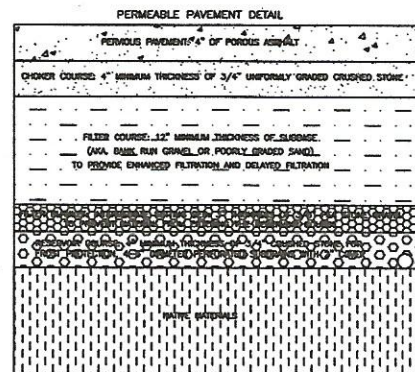
N.T.S.

PROPOSED GROUND FLOOR=10.5
PROPOSED FIRST FLOOR=10.5
EXISTING AVERAGE GRADE TOP CURB=10.5
PROPOSED ROOF HEIGHT = 33.1'
PROPOSED PEAK = 50.0
MAX. PEAK = 51.5
PROPOSED GARAGE FLOOR=10.5
EXISTING BUILDING COVER= 0K
PROPOSED BUILDING COVER= 21.3K
EXISTING IMPERVIOUS = 1775 S.F.
PROPOSED IMPERVIOUS = 1727 S.F.
EXISTING IMPERVIOUS (100%UPPER)= 481 S.F.
PROPOSED IMPERVIOUS (100%UPPER)= 576 S.F.
AREA WITHIN 25' BUFFER ZONE=1000S.F.

NOTES:
1) WATER SERVICE TO BE 1" TYPE "C" COPPER.
2) SEWER SERVICE TO BE 6" PVC.
3) WATER AND SEWER LATERALS SHALL BE 10' APART (MIN).
4) PROPOSED WATER TO BE CONNECTED TO NEW SERVICES.
5) PROPOSED SEWER TO BE CONNECTED TO NEW SERVICES.
6) LOT LOCATED IN FLOOD ZONE C. MAP 2201700415E.
7) LAWN GRASS TO BE REMOVED FROM THE 0 TO 25 FOOT BUFFER ZONE AND THE AREA TOP DRESSED WITH A COMPOSTED LEAF LITTER MATERIAL, APPLIED TO A DEPTH OF 3-4 INCHES ACROSS THE RESTORATION AREA.



SPY POND LANE



I CERTIFY THAT THE BUILDINGS ARE LOCATED AS SHOWN AND THAT THIS PLOT PLAN IS THE RESULT OF AN INSTRUMENT SURVEY.

PLANNING PLAN
IN
ARLINGTON, MASS.
SCALE: 1 IN. = 10 FT. NOVEMBER 2019

KEANAN SURVEY
8 WINCHESTER PLACE, SUITE 208
WINCHESTER, MASS. 01890
781-729-4213

REVISED: OCTOBER 25, 2019
REVISED: JUNE 27, 2019
REVISED: JUNE 11, 2019

250 of 325

ALAN ENGINEERING, L.L.C.

288 Littleton Road, Suite 31
Westford, MA 01886
(978) 577-6444
alan.eng@verizon.net

June 28, 2016

Scott Seaver
Seaver Construction, Inc.
215 Lexington Street
Woburn, MA 01801

Ref: Drainage Analysis
47 Spy Pond Lane – Lot 1
Arlington, MA

Dear Mr. Seaver:

Alan Engineering has prepared the following drainage analysis of the proposed house on Lot 1 at 47 Spy Pond Lane in Arlington, MA.

This analysis compares runoff generated from the existing site to the runoff that will be generated from the site after the construction of the new house. In accordance with the requirements of the Arlington Conservation Commission the 10-year, 25-year, and 100-year storm events were analyzed. The storm events were 24-hour rainfalls with a Type III rainfall distribution. The rainfall amounts were based on the "Cornell Study".

The proposed lot will contain 8,456 square feet of land. Under the existing conditions the lot contains 1,775 square feet of impervious area. The proposed site will contain a total of 2,659 square feet of impervious area.

The increase in impervious area will result in an increase in the rate and volume of runoff. In order to mitigate the increase a subsurface roof drain infiltration system is proposed. A roof gutter and downspout system will collect all roof runoff and discharge it into a subsurface system located at the rear of the proposed house. The system will collect and recharge a portion of the roof runoff that is slightly greater than the increase in runoff volume generated by the proposed site development. The result is a decrease in both the peak rate and total volume of runoff from the site. The results of the analysis are summarized in the table below.

Test pits were excavated on the lot on June 28, 2016 to determine the permeability of the soil and the depth to groundwater. All test pits had approximately 5 feet of fill above the original ground. The underlying native soil is fine sand. A percolation test yielded a rate of 1 minute per inch. This is indicative of hydrologic soil group (HSG) A. The estimated seasonal high groundwater ranged from 54 inches to 66 inches below the ground surface in 3 of the 4 test holes, and 90 inches below the ground surface in the higher of the 4 test holes.

Comparative Hydrologic Summary
47 Spy Pond Lane - Lot 1
Arlington, MA
June 28, 2016

10 Year Storm - 4.80 inches

Point of Analysis	Pre-Development		Post Development	
	Peak Rate (c.f.s.)	Volume (ac-ft)	Peak Rate (c.f.s.)	Volume (ac-ft)
Total Runoff	0.03	0.006	0.01	0.003

50 Year Storm - 7.06 inches

Point of Analysis	Pre-Development		Post Development	
	Peak Rate (c.f.s.)	Volume (ac-ft)	Peak Rate (c.f.s.)	Volume (ac-ft)
Total Runoff	0.23	0.020	0.12	0.013

100 Year Storm - 8.48 inches

Point of Analysis	Pre-Development		Post Development	
	Peak Rate (c.f.s.)	Volume (ac-ft)	Peak Rate (c.f.s.)	Volume (ac-ft)
Total Runoff	0.41	0.032	0.24	0.022

Please feel free to contact me with any questions or comments.

Very truly yours,

ALAN ENGINEERING, L.L.C.



Mark A. Sleger, P.E.
Manager

ALAN ENGINEERING, L.L.C.

SOIL EVALUATION REPORT

Job Number 1140 Client SEAUER CONSTRUCTION
 Site Address 47 SPY POND LANE Town ARLINGTON

Current Use RESIDENTIAL
 Site Description SINGLE FAMILY RESIDENCE
 Land Form GROUND MORRAINE
 Vegetation LAWN
 Water Supply TOWN

Deep Hole No AE-1 Date 6/28/2016
 Soil Evaluator M. SLEGER Temperature 65°
 Local Official N/A Weather CLOUDY - LIGHT RAIN

Horizon	Depth	Classification	Color	Comments		
FILL	0-54"	SANDY LOAM	—	SOME GRAVEL		
C	54-126	FINE SAND	10YR 5/4			
Seepage	Standing	Mottling	Color	ESHW	Roots	Refusal
108"	—	60"	2.5Y 6/3	60"	72"	—

Deep Hole No AE-2

Horizon	Depth	Classification	Color	Comments		
FILL	0-60"	SANDY FILL	—	MOTTLING IN SAND FILL		
A	60-69"	SANDY LOAM	10YR 2/2			
B	69-78"	FINE SAND	10YR 4/6			
C	78-120	FINE SAND	10YR 5/4			
Seepage	Standing	Mottling	Color	ESHW	Roots	Refusal
108"	108"	54"		54"	78"	—

Deep Hole No AE-3

Horizon	Depth	Classification	Color	Comments		
FILL	0-60"	SANDY FILL	—			
C ₁	60-138"	FINE SAND	10YR 5/4			
Seepage	Standing	Mottling	Color	ESHW	Roots	Refusal
—	—	90"	2.5Y 6/3	90"	96"	—

Deep Hole No AE-4

Horizon	Depth	Classification	Color	Comments		
FILL	0-66"	SANDY FILL				
C ₁	66-114"	FINE SAND	10YR 5/4			
Seepage	Standing	Mottling	Color	ESHW	Roots	Refusal
—	—	66"	2.5Y 6/3	66"		

ALAN ENGINEERING, L.L.C.

SOIL EVALUATION REPORT

Job Number 1140
 Site Address 47 SPY POND LANE

Client SCAVER CONST.
 Town ARLINGTON

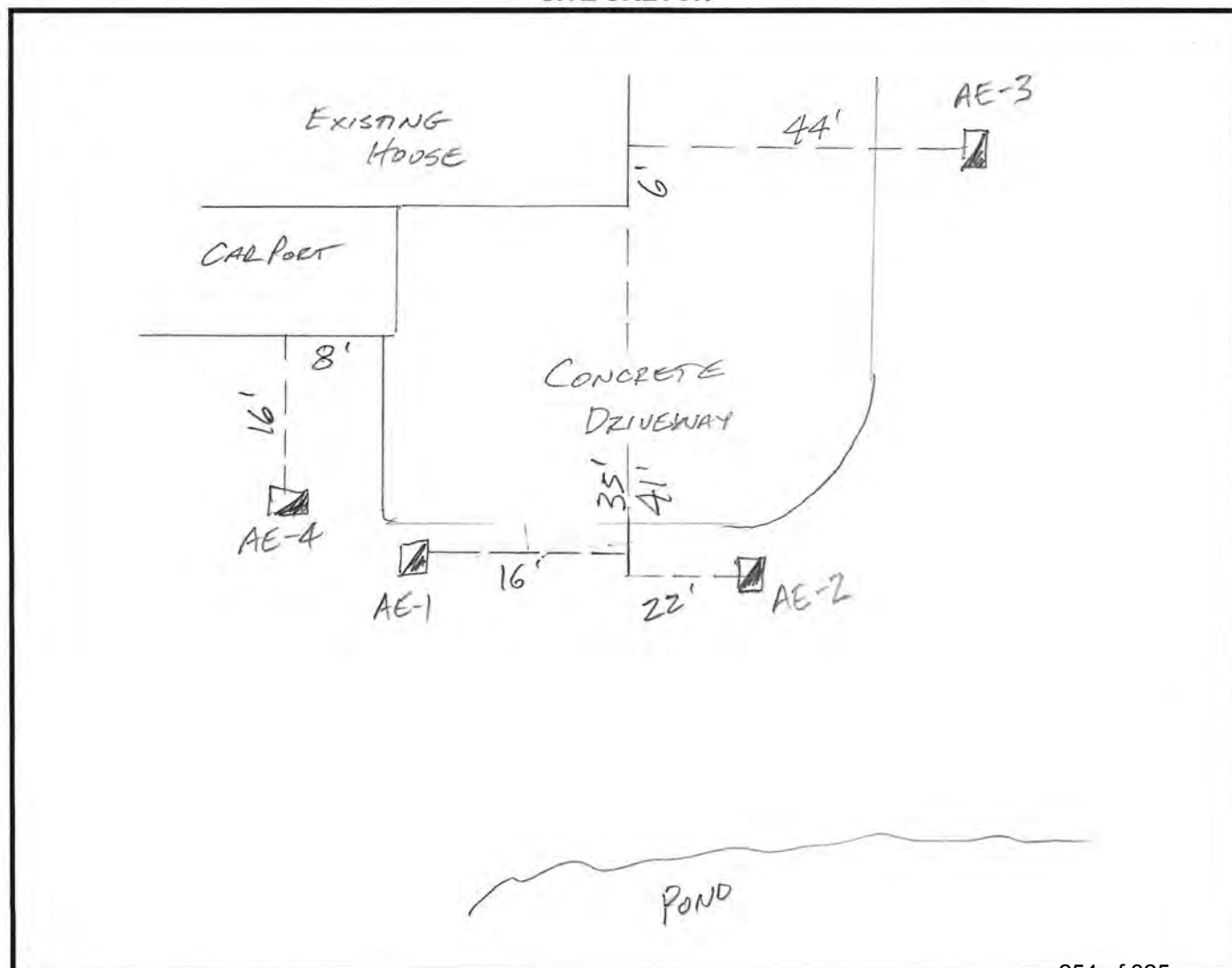
PERCOLATION TESTS


Soil Evaluator M. SLEGER
 Local Official N/A

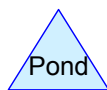
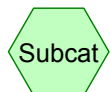
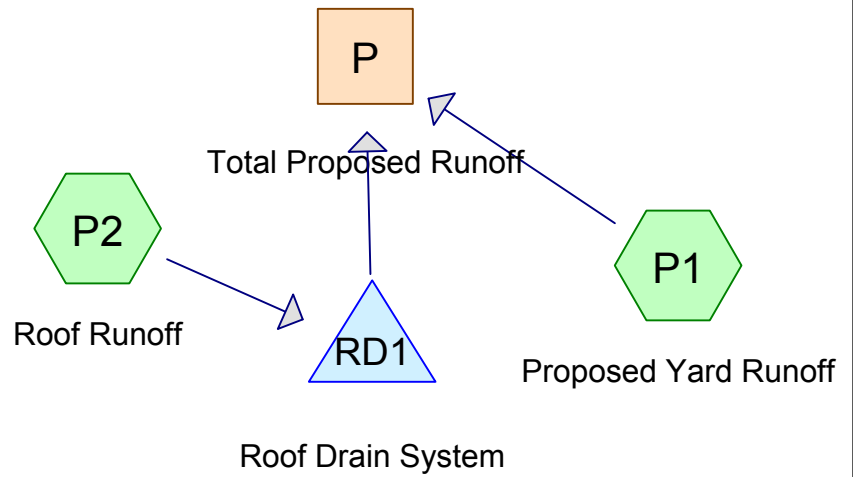
Date 6/28/2016 Temperature 65°
 Weather LIGHT RAIN

Deep Hole No	AE-1				
Depth to Bottom	84"				
Soil Classification	FINE SAND				
Start Pre Soak	9:02				
Start of Test - 12"	9:17				
Time at 9"	9:21				
Time at 6"	9:24				
Time from 9" to 6"	3 MIN				
Percolation Rate	1 MIN/INCH				

SITE SKETCH




Existing Runoff



Lot 1 Drainage Analysis

Prepared by ALAN Engineering, L.L.C.

HydroCAD® 10.00-16 s/n 04219 © 2015 HydroCAD Software Solutions LLC

Runoff Comparison - Lot 1

Type III 24-hr 10-Year Storm Rainfall=4.80"

Page 2

Summary for Subcatchment E: Existing Runoff

Runoff = 0.03 cfs @ 12.31 hrs, Volume= 0.006 af, Depth> 0.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Storm Rainfall=4.80"

Area (sf)	CN	Adj	Description
1,775	98		Unconnected pavement, HSG A
6,681	39		>75% Grass cover, Good, HSG A
8,456	51	45	Weighted Average, UI Adjusted
6,681			79.01% Pervious Area
1,775			20.99% Impervious Area
1,775			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment P1: Proposed Yard Runoff

Runoff = 0.01 cfs @ 12.39 hrs, Volume= 0.003 af, Depth> 0.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Storm Rainfall=4.80"

Area (sf)	CN	Adj	Description
692	98		Unconnected pavement, HSG A
5,797	39		>75% Grass cover, Good, HSG A
6,489	45	42	Weighted Average, UI Adjusted
5,797			89.34% Pervious Area
692			10.66% Impervious Area
692			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment P2: Roof Runoff

Runoff = 0.22 cfs @ 12.07 hrs, Volume= 0.017 af, Depth> 4.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Storm Rainfall=4.80"

Lot 1 Drainage Analysis

Prepared by ALAN Engineering, L.L.C.

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Runoff Comparison - Lot 1

Type III 24-hr 10-Year Storm Rainfall=4.80"

Page 3

Area (sf)	CN	Description
1,967	98	Roofs, HSG A
1,967		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Reach P: Total Proposed Runoff

Inflow Area = 0.194 ac, 31.45% Impervious, Inflow Depth > 0.20" for 10-Year Storm event
Inflow = 0.01 cfs @ 12.39 hrs, Volume= 0.003 af
Outflow = 0.01 cfs @ 12.39 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Pond RD1: Roof Drain System

Inflow Area = 0.045 ac, 100.00% Impervious, Inflow Depth > 4.56" for 10-Year Storm event
Inflow = 0.22 cfs @ 12.07 hrs, Volume= 0.017 af
Outflow = 0.05 cfs @ 11.73 hrs, Volume= 0.017 af, Atten= 77%, Lag= 0.0 min
Discarded = 0.05 cfs @ 11.73 hrs, Volume= 0.017 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 7.49' @ 12.45 hrs Surf.Area= 262 sf Storage= 148 cf

Plug-Flow detention time= 13.8 min calculated for 0.017 af (100% of inflow)
Center-of-Mass det. time= 13.7 min (761.0 - 747.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	6.50'	198 cf	11.25'W x 23.25'L x 2.54'H Field A 665 cf Overall - 169 cf Embedded = 496 cf x 40.0% Voids
#2A	7.00'	169 cf	Cultec R-150XLHD x 6 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 3 rows
		367 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	6.50'	8.270 in/hr Exfiltration over Horizontal area
#2	Primary	8.50'	4.0" Round Culvert X 2.00 L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.50' / 8.40' S= 0.0200 ' / ' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf

Lot 1 Drainage Analysis

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Runoff Comparison - Lot 1

Type III 24-hr 10-Year Storm Rainfall=4.80"

Page 4

Discarded OutFlow Max=0.05 cfs @ 11.73 hrs HW=6.53' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=6.50' (Free Discharge)

↑**2=Culvert** (Controls 0.00 cfs)

Lot 1 Drainage Analysis

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Runoff Comparison - Lot 1

Type III 24-hr 50-Year Storm Rainfall=7.06"

Page 5

Summary for Subcatchment E: Existing Runoff

Runoff = 0.23 cfs @ 12.10 hrs, Volume= 0.020 af, Depth> 1.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Year Storm Rainfall=7.06"

Area (sf)	CN	Adj	Description
1,775	98		Unconnected pavement, HSG A
6,681	39		>75% Grass cover, Good, HSG A
8,456	51	45	Weighted Average, UI Adjusted
6,681			79.01% Pervious Area
1,775			20.99% Impervious Area
1,775			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment P1: Proposed Yard Runoff

Runoff = 0.12 cfs @ 12.11 hrs, Volume= 0.013 af, Depth> 1.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Year Storm Rainfall=7.06"

Area (sf)	CN	Adj	Description
692	98		Unconnected pavement, HSG A
5,797	39		>75% Grass cover, Good, HSG A
6,489	45	42	Weighted Average, UI Adjusted
5,797			89.34% Pervious Area
692			10.66% Impervious Area
692			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment P2: Roof Runoff

Runoff = 0.32 cfs @ 12.07 hrs, Volume= 0.026 af, Depth> 6.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Year Storm Rainfall=7.06"

Lot 1 Drainage Analysis

Prepared by ALAN Engineering, L.L.C.

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Runoff Comparison - Lot 1

Type III 24-hr 50-Year Storm Rainfall=7.06"

Page 6

Area (sf)	CN	Description
1,967	98	Roofs, HSG A
1,967		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Reach P: Total Proposed Runoff

Inflow Area = 0.194 ac, 31.45% Impervious, Inflow Depth > 0.78" for 50-Year Storm event
Inflow = 0.12 cfs @ 12.11 hrs, Volume= 0.013 af
Outflow = 0.12 cfs @ 12.11 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Pond RD1: Roof Drain System

Inflow Area = 0.045 ac, 100.00% Impervious, Inflow Depth > 6.82" for 50-Year Storm event
Inflow = 0.32 cfs @ 12.07 hrs, Volume= 0.026 af
Outflow = 0.05 cfs @ 11.64 hrs, Volume= 0.026 af, Atten= 85%, Lag= 0.0 min
Discarded = 0.05 cfs @ 11.64 hrs, Volume= 0.026 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 8.32' @ 12.54 hrs Surf.Area= 262 sf Storage= 289 cf

Plug-Flow detention time= 30.7 min calculated for 0.026 af (100% of inflow)
Center-of-Mass det. time= 30.6 min (772.0 - 741.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	6.50'	198 cf	11.25'W x 23.25'L x 2.54'H Field A 665 cf Overall - 169 cf Embedded = 496 cf x 40.0% Voids
#2A	7.00'	169 cf	Cultec R-150XLHD x 6 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 3 rows
		367 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	6.50'	8.270 in/hr Exfiltration over Horizontal area
#2	Primary	8.50'	4.0" Round Culvert X 2.00 L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.50' / 8.40' S= 0.0200 ' / ' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf

Lot 1 Drainage Analysis

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Runoff Comparison - Lot 1

Type III 24-hr 50-Year Storm Rainfall=7.06"

Page 7

Discarded OutFlow Max=0.05 cfs @ 11.64 hrs HW=6.53' (Free Discharge)

↳ **1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=6.50' (Free Discharge)

↳ **2=Culvert** (Controls 0.00 cfs)

Lot 1 Drainage Analysis

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Runoff Comparison - Lot 1

Type III 24-hr 100-Year Storm Rainfall=8.48"

Page 8

Summary for Subcatchment E: Existing Runoff

Runoff = 0.41 cfs @ 12.09 hrs, Volume= 0.032 af, Depth> 1.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Storm Rainfall=8.48"

Area (sf)	CN	Adj	Description
1,775	98		Unconnected pavement, HSG A
6,681	39		>75% Grass cover, Good, HSG A
8,456	51	45	Weighted Average, UI Adjusted
6,681			79.01% Pervious Area
1,775			20.99% Impervious Area
1,775			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment P1: Proposed Yard Runoff

Runoff = 0.24 cfs @ 12.09 hrs, Volume= 0.021 af, Depth> 1.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Storm Rainfall=8.48"

Area (sf)	CN	Adj	Description
692	98		Unconnected pavement, HSG A
5,797	39		>75% Grass cover, Good, HSG A
6,489	45	42	Weighted Average, UI Adjusted
5,797			89.34% Pervious Area
692			10.66% Impervious Area
692			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment P2: Roof Runoff

Runoff = 0.39 cfs @ 12.07 hrs, Volume= 0.031 af, Depth> 8.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Storm Rainfall=8.48"

Lot 1 Drainage Analysis

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Runoff Comparison - Lot 1

Type III 24-hr 100-Year Storm Rainfall=8.48"

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Area (sf)	CN	Description
1,967	98	Roofs, HSG A
1,967		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Reach P: Total Proposed Runoff

Inflow Area = 0.194 ac, 31.45% Impervious, Inflow Depth > 1.38" for 100-Year Storm event
Inflow = 0.24 cfs @ 12.09 hrs, Volume= 0.022 af
Outflow = 0.24 cfs @ 12.09 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Pond RD1: Roof Drain System

Inflow Area = 0.045 ac, 100.00% Impervious, Inflow Depth > 8.23" for 100-Year Storm event
Inflow = 0.39 cfs @ 12.07 hrs, Volume= 0.031 af
Outflow = 0.13 cfs @ 12.32 hrs, Volume= 0.031 af, Atten= 66%, Lag= 15.0 min
Discarded = 0.05 cfs @ 11.60 hrs, Volume= 0.029 af
Primary = 0.08 cfs @ 12.32 hrs, Volume= 0.002 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 8.65' @ 12.32 hrs Surf.Area= 262 sf Storage= 327 cf

Plug-Flow detention time= 33.1 min calculated for 0.031 af (100% of inflow)
Center-of-Mass det. time= 33.0 min (772.2 - 739.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	6.50'	198 cf	11.25'W x 23.25'L x 2.54'H Field A 665 cf Overall - 169 cf Embedded = 496 cf x 40.0% Voids
#2A	7.00'	169 cf	Cultec R-150XLHD x 6 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 3 rows
		367 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	6.50'	8.270 in/hr Exfiltration over Horizontal area
#2	Primary	8.50'	4.0" Round Culvert X 2.00 L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.50' / 8.40' S= 0.0200 ' / ' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf

Lot 1 Drainage Analysis

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Runoff Comparison - Lot 1

Type III 24-hr 100-Year Storm Rainfall=8.48"

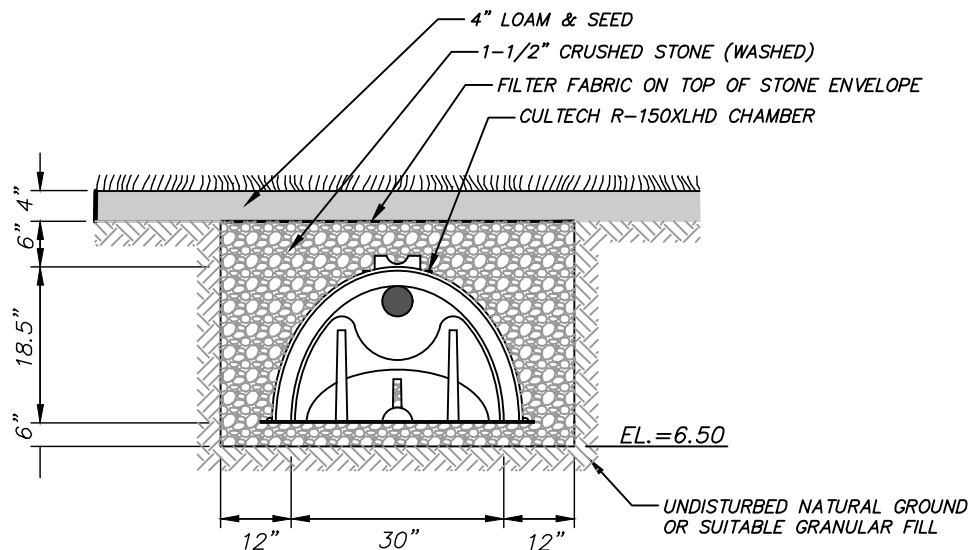
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Discarded OutFlow Max=0.05 cfs @ 11.60 hrs HW=6.53' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.08 cfs @ 12.32 hrs HW=8.65' (Free Discharge)

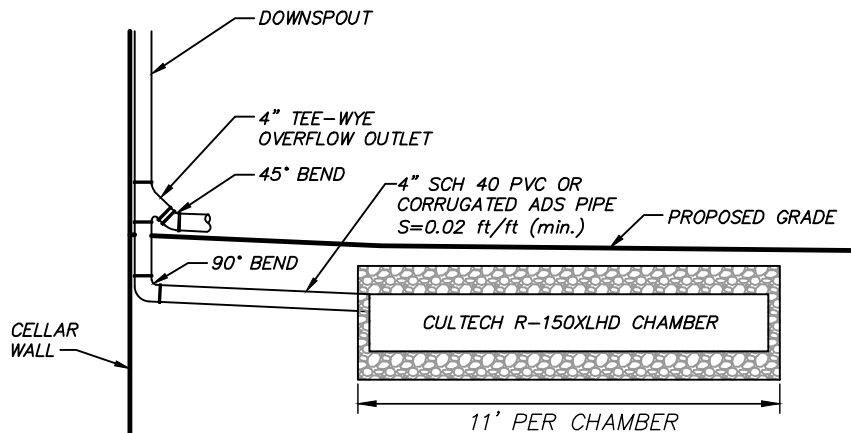
↑**2=Culvert** (Inlet Controls 0.08 cfs @ 1.06 fps)



NOTES:
REMOVE ALL TOP AND SUBSOIL AND ANY ORGANIC OR OTHERWISE UNSUITABLE MATERIAL TO A DEPTH OF 2 FEET BENEATH STONE.

ROOF DRAIN LEACHING CHAMBER

NOT TO SCALE



ROOF DRAIN DETAIL

NOT TO SCALE

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ROOF DRAIN DETAIL
47 SPY POND LANE
LOT 1
ARLINGTON, MA

**ALAN
ENGINEERING, L.L.C.**
288 LITTLETON ROAD, SUITE 31
WESTFORD, MA 01886

JOB NO. 1140

DWG NO

JUNE 28, 2016

SHEET

SCALE: AS SHOWN 285 of 329



SCALE: 1" = 10' of 2

Construction Period Operation & Maintenance Plan

Construction Period Stormwater
Operation & Maintenance Plan

Site Redevelopment
47 Spy Pond Lane (Lot 1/A), Arlington, MA

Erosion and Sedimentation will be controlled at the site by utilizing Structural Practices, Stabilization Practices, and Dust Control. These practices correspond with site plans submitted for the 47 Spy Pond Lane (Lot 1/A) project.

Responsible Party

Seaver Construction, Inc.
215 Lexington Street
Woburn, MA 01801

City of Arlington Emergency Contact Information

Conservation Administrator

Town Hall
730 Massachusetts Avenue
Arlington, MA
(781) 316 3012

Project Summary

The project involves the construction of a new home, driveway, landscaping and utilities. Additionally, mitigation is provided through the installation of a Vortech unit within the Town roadway. A wetland resource area, ie Spy Pond, at the rear of the property requires diligence in ensuring that disturbance to the site does not cause erosion or detriment to the resource area. At the outset of the project, erosion controls shall be installed and maintained throughout the duration of the proposed work as follows.

Erosion & Sedimentation Control Practices

- 1) **Silt Sock Erosion Control Barrier** – A Filter Mitt erosion control barrier, backed by an entrenched row of siltation control fencing, will be installed along downward slopes at the limit of work shown on the site plans. This control will be installed prior to soil disturbance on the site. The sediment fence should be installed as shown on the Site Plans.

Filter Mitt Inspection/Maintenance *

- a) Erosion control should be inspected immediately after each rainfall event of 1-inch or greater, and at least daily during prolonged rainfall. Inspect the depth of sediment, fabric tears, if the silt sock is securely attached to the ground, and to see that the stakes are firmly in the ground. Repair or replace as necessary.
- b) Remove sediment deposits promptly after storm events to provide adequate storage volume for the next rain and to reduce pressure on the sock. Sediment will be removed from behind the sock when it becomes about 3 inches deep at the fence. Take care to avoid undermining sock during cleanout.

- c) Remove all materials after the contributing drainage area has been properly stabilized. Sediment deposits remaining after the fabric has been removed should be graded to conform with the existing topography and vegetated.
- 2) **Stabilized Construction Entrance** – A stabilized construction entrance shall be placed at the location of the proposed driveway, or at the location specified on the site plans. The stabilized entrance shall be installed immediately following the removal of the existing bituminous concrete driveway. The entrance will keep mud and sediment from being tracked onto Spy Pond Lane by vehicles leaving the site. This stabilized entrance shall be 15 feet long and as wide as the proposed drive.

Construction Entrance Design/Construction Requirements *

- a) Stone for a stabilized construction entrance shall consist of 1 to 3-inch stone placed on a stable foundation.
- b) Pad dimensions: The minimum length of the gravel pad should be 15 feet. The pad should extend the full width of the proposed driveway, or wide enough so that the largest construction vehicle will fit in the entrance with room to spare; whichever is greater. If a large amount of traffic is expected at the entrance, then the stabilized construction entrance should be wide enough to fit two vehicles across with room to spare.
- c) A geotextile filter fabric shall be placed between the stone fill and the earth surface below the pad to reduce the migration of soil particles from the underlying soil into the stone and vice versa. The filter fabric should be Amoco woven polypropylene 1198 or equivalent.

Construction Entrance Inspection/Maintenance *

- a) The entrance should be maintained in a condition that will prevent tracking or flowing of sediment onto Spy Pond Lane. This may require periodic topdressing with additional stone.
- b) The construction entrance and sediment disposal area shall be inspected weekly and after heavy rains or heavy use.
- c) Mud and sediment tracked or washed onto public road shall be immediately removed by sweeping.
- d) If washing facilities are used, the sediment traps should be cleaned out as often as necessary to assure that adequate trapping efficiency and storage volume is available.
- e) The pad shall be reshaped as needed for drainage and runoff control.
- f) All temporary erosion and sediment control measures shall be removed within 30 days after final site stabilization is achieved or after the temporary practices are no longer needed. Trapped sediment shall be removed or stabilized on site. Disturbed soil areas resulting from removal shall be permanently stabilized.

- 3) **Temporary Seeding** – Temporary seeding will allow a short-term vegetative cover on disturbed site areas that may be in danger of erosion. Temporary seeding will be done at stock piles and disturbed portions of the site where construction activity will temporarily cease for at least 21 days. The temporary seedings will stabilize cleared and unvegetated areas that will not be brought into final grade for several weeks or months.

Temporary Seeding Planting Procedures *

- a) Planting should preferably be done between April 1st and June 30th, and September 1st through September 31st. If planting is done in the months of July and August, irrigation may be required. If planting is done between October 1st and March 31st, mulching should be applied immediately after planting. If seeding is done during the summer months, irrigation of some sort will probably be necessary.
- b) Before seeding, install structural practice controls. Utilize Amoco supergro or equivalent.
- c) The seedbed should be firm with a fairly fine surface. Perform all cultural operations across or at right angles to the slope. A minimum of 2 to 4-inches of tilled topsoil is required. The topsoil must have a sandy loam to silt loam texture with 15% to 20% organic content.
- d) Apply uniformly 2 tons of ground limestone per acre (100 lbs. Per 1,000 sq.ft.) or according to soil test. Apply uniformly 10-10-10 analysis fertilizer at the rate of 400 lbs. per acre (14 lbs. per 1,000 sq.ft.) or as indicated by soil test. Forty percent of the nitrogen should be in organic form. Work in lime and fertilizer to a depth of 4-inches using any suitable equipment.
- e) Select the appropriate seed species for temporary cover from the following table.

Species	Seeding Rate (lbs/1,000 sq.ft.)	Seeding Rate (lbs/acre)	Recommended Seeding Dates	Seed Cover required
Annual Ryegrass	1	40	April 1 st to June 1 st August 15 th to Sept. 15 th	¼ inch
Foxtail Millet	0.7	30	May 1 st to June 30 th	½ to ¾ inch
Oats	2	80	April 1 st to July 1 st August 15 th to Sept. 15 th	1 to 1-½ inch
Winter Rye	3	120	August 15 th to Oct. 15 th	1 to 1-½ inch

Apply the seed uniformly by hydroseeding, broadcasting, or by hand.

- f) Use an effective mulch, such as clean grain straw; tacked and/or tied with netting to protect seedbed and encourage plant growth.

Temporary Seeding Inspection/Maintenance *

- a) Inspect within 6 weeks of planting to see if stands are adequate. Check for damage within 24 hours of the end to a heavy rainfall, defined as a 2-year storm event (i.e., 3.2 inches of rainfall within a twenty-four hour period). Stands should be uniform and dense. Fertilize, reseed, and mulch damaged and sparse areas immediately. Tack or tie down mulch as necessary.
 - b) Seeds should be supplied with adequate moisture. Furnish water as needed, especially in abnormally hot or dry weather. Water application rates should be controlled to prevent runoff.
- 4) **Dust Control** - Dust control will be utilized throughout the entire construction process of the site. For example, keeping disturbed surfaces moist during windy periods will be an effective control measure. The use of dust control will prevent the movement of soil to offsite areas. However, care must be taken to not create runoff from excessive use of water to control dust. The following are methods of Dust Control that may be used on-site:
- Vegetative Cover – The most practical method for disturbed areas not subject to traffic.
 - Sprinkling – The site may be sprinkled until the surface is wet. Sprinkling will be effective for dust control on haul roads and other traffic routes.
 - Stone – Stone will be used to stabilize construction entrances; will also be effective for dust control.
- 5) **Material Stockpiling** – Material stockpiles shall be located as far from Wetland Resource Areas as possible and shall never be located within the 100-foot buffer zone as shown on the approved site plans. The preferred location for all stockpiles is at the front of the project locus between the house and Spy Pond Lane.
- 6) **Cleaning of Vortechincs Unit:** During construction, the contractor is responsible for maintaining silt sacks within the drainage area contributing to the newly installed Vortechincs Unit. The Vortechincs unit will be vacuumed prior to the issuance of a Certificate of Compliance, at which time maintenance responsibilities for the unit will be delegated to the Arlington Department of Public Works.

Post-Construction Stormwater
Operation & Maintenance Plan

Site Redevelopment
47 Spy Pond Land (Lot 1/A), Arlington, MA

Best Management Practices (BMPs) pursuant to the MA DEP Wetlands Protection Act, Arlington Wetlands Protection Bylaw and accepted design practice have been implemented and utilized for the project. The following information provided is to be used as a guideline for monitoring and maintaining the performance of the drainage facilities constructed as part of the site development. The structural Best Management Practices (BMPs) shall be inspected during rainfall conditions during the first year of operation to verify functionality.

Responsible Party

Homeowner

Town of Arlington Contact Information

Conservation Administrator

Town Hall

730 Massachusetts Avenue
Arlington, MA
(781) 316 3012

Maintenance:

1. **Infiltration Systems** – Subsurface infiltration systems shall be inspected twice per year to verify that sediment is not being discharged into the system and that the system is functioning properly. If sediment depth within the system exceeds three inches, an experienced contractor or designer shall be contacted to consult on methods to clean and remediate the system. Furthermore, at least once per year, the system shall be inspected immediately following a heavy rainfall to ensure that the system drains within 72 hours of the end of said storm. If, after 72 hours, the system is still retaining water, the homeowner shall contact a licensed professional civil engineer to determine a method for remediating the system failure.
2. **Crushed Stone Infiltration Trench** – The crushed stone infiltration trench at the edge of the driveway shall be cleaned of debris during regular landscape maintenance. A standard leaf blower can be used to remove debris from the stone surface. If the trench fails to drain after rainfall, the stone shall be removed, washed, and placed back in the trench after the bottom is scarified.
3. **Pesticides, Herbicides and Fertilizers:** - Pesticides and herbicides shall not be used on the property. In addition, fertilizers that are used on the property shall be utilized sparingly and should be restricted to the use of organic fertilizers only
4. **Vortechnics Unit:** Maintenance of the unit will be done by the Town of Arlington, Department of Public Works. The unit will be inspected at least twice a year, and vacuumed as necessary to ensure full function of the unit.

Storage and Disposal of Household Waste and Toxics:

This management measure involves educating the general public on the management considerations for hazardous materials. Failure to properly store hazardous materials dramatically increases the probability that they will end up in local waterways. Many people have hazardous chemicals stored throughout their homes, especially in garages and storage sheds. Practices such as covering hazardous materials or even storing them properly, can have

dramatic impacts. Property owners are encouraged to support the household hazardous product collection events sponsored by the Town of Arlington.

MADEP has prepared several materials for homeowners on how to properly use and dispose of household hazardous materials:

<http://www.mass.gov/dep/recycle/reduce/househol.htm>

For consumer questions on household hazardous waste call the following number:

DEP Household Hazardous Waste Hotline 800-343-3420

Vehicle Washing:

This management measure involves educating the general public on the water quality impacts of the outdoor washing of automobiles and how to avoid allowing polluted runoff to enter the storm drain system. Outdoor car washing has the potential to result in high loads of nutrients, metals, and hydrocarbons during dry weather conditions in many watersheds, as the detergent-rich water used to wash the grime off our cars flows down the street and into the storm drain. The following management practices will be encouraged:

- Washing cars on gravel, grass, or other permeable surfaces.
- Blocking off the storm drain during car washing and redirecting wash water onto grass or landscaping to provide filtration.
- Using hoses with nozzles that automatically turn off when left unattended.
- Using only biodegradable soaps.
- Minimize the amounts of soap and water used. Wash cars less frequently.
- Promote use of commercial car wash services.

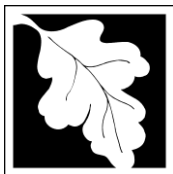
Landscape Maintenance:

This management measure seeks to control the storm water impacts of landscaping and lawn care practices through education and outreach on methods that reduce nutrient loadings and the amount of storm water runoff generated from lawns. Nutrient loads generated by fertilizer use on suburban lawns can be significant, and recent research has shown that lawns produce more surface runoff than previously thought.

Using proper landscaping techniques can effectively increase the value of a property while benefiting the environment. These practices can benefit the environment by reducing water use; decreasing energy use (because less water pumping and treatment is required); minimizing runoff of storm and irrigation water that transports soils, fertilizers, and pesticides; and creating additional habitat for plants and wildlife. The following lawn and landscaping management practices will be encouraged:

- Mow lawns at the highest recommended height.
- Minimize lawn size and maintain existing native vegetation.

- Collect rainwater for landscaping/gardening needs (rain barrels and cisterns to capture roof runoff).
- Raise public awareness for promoting the water efficient maintenance practices by informing users of water efficient irrigation techniques and other innovative approaches to water conservation.
- Abide by water restrictions and other conservation measures implemented by the Town of Arlington.
- Water only when necessary.
- Use automatic irrigation systems to reduce water use.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Arlington

City/Town

Important:

When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Note:
Before completing this form consult your local Conservation Commission regarding any municipal bylaw or ordinance.

A. General Information

1. Project Location (**Note:** electronic filers will click on button to locate project site):

47 Spy Pond Lane (Lot 2/Lot B)

a. Street Address

Arlington

b. City/Town

02474

c. Zip Code

Latitude and Longitude:

12-4-2

f. Assessors Map/Plat Number

d. Latitude

e. Longitude

g. Parcel /Lot Number

2. Applicant:

Scott

a. First Name

Seaver

b. Last Name

Seaver Construction

c. Organization

215 Lexington Street

d. Street Address

Woburn

e. City/Town

MA

f. State

01801

g. Zip Code

h. Phone Number

i. Fax Number

j. Email Address

3. Property owner (required if different from applicant): ☐ Check if more than one owner

a. First Name

b. Last Name

c. Organization

d. Street Address

e. City/Town

f. State

g. Zip Code

h. Phone Number

i. Fax Number

j. Email address

4. Representative (if any):

Mary

a. First Name

Trudeau

b. Last Name

d. Street Address

e. City/Town

MA

02420

g. Zip Code

h. Phone Number

i. Fax Number

j. Email address

5. Total WPA Fee Paid (from NOI Wetland Fee Transmittal Form):

\$500.00

a. Total Fee Paid

\$237.50

b. State Fee Paid

\$ 262.50

c. City/Town Fee Paid



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Arlington

City/Town

A. General Information (continued)

6. General Project Description:

Construction of a single family dwelling. Work is within one hundred feet of jurisdictional wetlands.

7a. Project Type Checklist: (Limited Project Types see Section A. 7b.)

- | | |
|---|---|
| 1. <input checked="" type="checkbox"/> Single Family Home | 2. <input type="checkbox"/> Residential Subdivision |
| 3. <input type="checkbox"/> Commercial/Industrial | 4. <input type="checkbox"/> Dock/Pier |
| 5. <input type="checkbox"/> Utilities | 6. <input type="checkbox"/> Coastal engineering Structure |
| 7. <input type="checkbox"/> Agriculture (e.g., cranberries, forestry) | 8. <input type="checkbox"/> Transportation |
| 9. <input type="checkbox"/> Other | |

7b. Is any portion of the proposed activity eligible to be treated as a limited project (including Ecological Restoration Limited Project) subject to 310 CMR 10.24 (coastal) or 310 CMR 10.53 (inland)?

1. ☐ Yes ☒ No If yes, describe which limited project applies to this project. (See 310 CMR 10.24 and 10.53 for a complete list and description of limited project types)

2. Limited Project Type

If the proposed activity is eligible to be treated as an Ecological Restoration Limited Project (310 CMR 10.24(8), 310 CMR 10.53(4)), complete and attach Appendix A: Ecological Restoration Limited Project Checklist and Signed Certification.

8. Property recorded at the Registry of Deeds for:

Middlesex

a. County

73606

c. Book

b. Certificate # (if registered land)

227

d. Page Number

B. Buffer Zone & Resource Area Impacts (temporary & permanent)

1. ☒ Buffer Zone Only – Check if the project is located only in the Buffer Zone of a Bordering Vegetated Wetland, Inland Bank, or Coastal Resource Area.
2. ☐ Inland Resource Areas (see 310 CMR 10.54-10.58; if not applicable, go to Section B.3, Coastal Resource Areas).

Check all that apply below. Attach narrative and any supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

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B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

For all projects affecting other Resource Areas, please attach a narrative explaining how the resource area was delineated.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. <input type="checkbox"/> Bank	1. linear feet	2. linear feet
b. <input type="checkbox"/> Bordering Vegetated Wetland	1. square feet	2. square feet
c. <input type="checkbox"/> Land Under Waterbodies and Waterways	1. square feet	2. square feet
	3. cubic yards dredged	

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
d. <input type="checkbox"/> Bordering Land Subject to Flooding	1. square feet	2. square feet
	3. cubic feet of flood storage lost	4. cubic feet replaced
e. <input type="checkbox"/> Isolated Land Subject to Flooding	1. square feet	
	2. cubic feet of flood storage lost	3. cubic feet replaced
f. <input type="checkbox"/> Riverfront Area	1. Name of Waterway (if available) - specify coastal or inland	

2. Width of Riverfront Area (check one):

☐ 25 ft. - Designated Densely Developed Areas only

☐ 100 ft. - New agricultural projects only

☐ 200 ft. - All other projects

3. Total area of Riverfront Area on the site of the proposed project: _____ square feet

4. Proposed alteration of the Riverfront Area:

a. total square feet _____ b. square feet within 100 ft. _____ c. square feet between 100 ft. and 200 ft. _____

5. Has an alternatives analysis been done and is it attached to this NOI? ☐ Yes ☐ No

6. Was the lot where the activity is proposed created prior to August 1, 1996? ☐ Yes ☐ No

3. ☐ Coastal Resource Areas: (See 310 CMR 10.25-10.35)

Note: for coastal riverfront areas, please complete **Section B.2.f.** above.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

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Arlington

City/Town

B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

Check all that apply below. Attach narrative and supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

Online Users:
Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. <input type="checkbox"/> Designated Port Areas	Indicate size under Land Under the Ocean, below	
b. <input type="checkbox"/> Land Under the Ocean	1. square feet 2. cubic yards dredged	
c. <input type="checkbox"/> Barrier Beach	Indicate size under Coastal Beaches and/or Coastal Dunes below	
d. <input type="checkbox"/> Coastal Beaches	1. square feet	2. cubic yards beach nourishment
e. <input type="checkbox"/> Coastal Dunes	1. square feet	2. cubic yards dune nourishment
	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
f. <input type="checkbox"/> Coastal Banks	1. linear feet	
g. <input type="checkbox"/> Rocky Intertidal Shores	1. square feet	
h. <input type="checkbox"/> Salt Marshes	1. square feet	2. sq ft restoration, rehab., creation
i. <input type="checkbox"/> Land Under Salt Ponds	1. square feet 2. cubic yards dredged	
j. <input type="checkbox"/> Land Containing Shellfish	1. square feet	
k. <input type="checkbox"/> Fish Runs	Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above 1. cubic yards dredged	
l. <input type="checkbox"/> Land Subject to Coastal Storm Flowage	1. square feet	

4. ☒ Restoration/Enhancement

If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.2.b or B.3.h above, please enter the additional amount here.

200

a. square feet of BVW

b. square feet of Salt Marsh

5. ☐ Project Involves Stream Crossings

a. number of new stream crossings

b. number of replacement stream crossings



WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

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C. Other Applicable Standards and Requirements

- ☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section C and complete Appendix A: Ecological Restoration Notice of Intent – Required Actions (310 CMR 10.11).

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

1. Is any portion of the proposed project located in **Estimated Habitat of Rare Wildlife** as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage and Endangered Species Program (NHESP)? To view habitat maps, see the *Massachusetts Natural Heritage Atlas* or go to http://maps.massgis.state.ma.us/PRI_EST_HAB/viewer.htm.

a. ☒ Yes ☐ No

If yes, include proof of mailing or hand delivery of NOI to:

Natural Heritage and Endangered Species Program
Division of Fisheries and Wildlife
1 Rabbit Hill Road
Westborough, MA 01581

2008

b. Date of map

If yes, the project is also subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18). To qualify for a streamlined, 30-day, MESA/Wetlands Protection Act review, please complete Section C.1.c, and include requested materials with this Notice of Intent (NOI); *OR* complete Section C.2.f, if applicable. *If MESA supplemental information is not included with the NOI, by completing Section 1 of this form, the NHESP will require a separate MESA filing which may take up to 90 days to review (unless noted exceptions in Section 2 apply, see below).*

- c. Submit Supplemental Information for Endangered Species Review*

1. ☒ Percentage/acreage of property to be altered:

(a) within wetland Resource Area 0 percent
percentage/acreage

(b) outside Resource Area _____
percentage/acreage

2. ☒ Assessor's Map or right-of-way plan of site

2. ☒ Project plans for entire project site, including wetland resource areas and areas outside of wetlands jurisdiction, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work **

(a) ☒ Project description (including description of impacts outside of wetland resource area & buffer zone)

(b) ☒ Photographs representative of the site

* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review (see <http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/regulatory-review/>). Priority Habitat includes habitat for state-listed plants and strictly upland species not protected by the Wetlands Protection Act.

** MESA projects may not be segmented (321 CMR 10.16). The applicant must disclose full development plans even if such plans are not required as part of the Notice of Intent process.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

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C. Other Applicable Standards and Requirements (cont'd)

- (c) ☒ MESA filing fee (fee information available at http://www.mass.gov/dfwele/dfw/nhESP/regulatory_review/esa/esa_fee_schedule.htm).
Make check payable to "Commonwealth of Massachusetts - NHESP" and **mail to NHESP** at above address

Projects altering 10 or more acres of land, also submit:

- (d) ☐ Vegetation cover type map of site
- (e) ☐ Project plans showing Priority & Estimated Habitat boundaries
- (f) OR Check One of the Following
1. ☐ Project is exempt from MESA review.
Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, http://www.mass.gov/dfwele/dfw/nhESP/regulatory_review/esa/esa_exemptions.htm; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.)
2. ☐ Separate MESA review ongoing. _____ a. NHESP Tracking # _____ b. Date submitted to NHESP
3. ☐ Separate MESA review completed.
Include copy of NHESP "no Take" determination or valid Conservation & Management Permit with approved plan.
3. For coastal projects only, is any portion of the proposed project located below the mean high water line or in a fish run?
- a. ☐ Not applicable – project is in inland resource area only b. ☐ Yes ☐ No

If yes, include proof of mailing, hand delivery, or electronic delivery of NOI to either:

South Shore - Cohasset to Rhode Island border, and the Cape & Islands:

Division of Marine Fisheries -
Southeast Marine Fisheries Station
Attn: Environmental Reviewer
1213 Purchase Street – 3rd Floor
New Bedford, MA 02740-6694
Email: DMF.EnvReview-South@state.ma.us

North Shore - Hull to New Hampshire border:

Division of Marine Fisheries -
North Shore Office
Attn: Environmental Reviewer
30 Emerson Avenue
Gloucester, MA 01930
Email: DMF.EnvReview-North@state.ma.us

Also if yes, the project may require a Chapter 91 license. For coastal towns in the Northeast Region, please contact MassDEP's Boston Office. For coastal towns in the Southeast Region, please contact MassDEP's Southeast Regional Office.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Arlington

City/Town

Online Users:

Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

C. Other Applicable Standards and Requirements (cont'd)

4. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?
- a. ☐ Yes ☒ No If yes, provide name of ACEC (see instructions to WPA Form 3 or MassDEP Website for ACEC locations). **Note:** electronic filers click on Website.
- b. ACEC
5. Is any portion of the proposed project within an area designated as an Outstanding Resource Water (ORW) as designated in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00?
- a. ☐ Yes ☒ No
6. Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L. c. 131, § 40A) or the Coastal Wetlands Restriction Act (M.G.L. c. 130, § 105)?
- a. ☐ Yes ☒ No
7. Is this project subject to provisions of the MassDEP Stormwater Management Standards?
- a. ☐ Yes. Attach a copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) and check if:
1. ☐ Applying for Low Impact Development (LID) site design credits (as described in Stormwater Management Handbook Vol. 2, Chapter 3)
 2. ☐ A portion of the site constitutes redevelopment
 3. ☐ Proprietary BMPs are included in the Stormwater Management System.
- b. ☒ No. Check why the project is exempt:
1. ☒ Single-family house
 2. ☐ Emergency road repair
 3. ☒ Small Residential Subdivision (less than or equal to 4 single-family houses or less than or equal to 4 units in multi-family housing project) with no discharge to Critical Areas.

D. Additional Information

- ☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section D and complete Appendix A: Ecological Restoration Notice of Intent – Minimum Required Documents (310 CMR 10.12).

Applicants must include the following with this Notice of Intent (NOI). See instructions for details.

Online Users: Attach the document transaction number (provided on your receipt page) for any of the following information you submit to the Department.

1. ☒ USGS or other map of the area (along with a narrative description, if necessary) containing sufficient information for the Conservation Commission and the Department to locate the site. (Electronic filers may omit this item.)
2. ☒ Plans identifying the location of proposed activities (including activities proposed to serve as a Bordering Vegetated Wetland [BVW] replication area or other mitigating measure) relative to the boundaries of each affected resource area.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

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D. Additional Information (cont'd)

3. ☐ Identify the method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s), Determination of Applicability, Order of Resource Area Delineation, etc.), and attach documentation of the methodology.

4. ☐ List the titles and dates for all plans and other materials submitted with this NOI.

Proposed Plan in Arlington, MA

a. Plan Title

Keenan Survey

James R Keenan

b. Prepared By

c. Signed and Stamped by

3-17-19

1"=10'

d. Final Revision Date

e. Scale

See Notice of Intent

f. Additional Plan or Document Title

g. Date

5. ☐ If there is more than one property owner, please attach a list of these property owners not listed on this form.
6. ☒ Attach proof of mailing for Natural Heritage and Endangered Species Program, if needed.
7. ☐ Attach proof of mailing for Massachusetts Division of Marine Fisheries, if needed.
8. ☒ Attach NOI Wetland Fee Transmittal Form
9. ☐ Attach Stormwater Report, if needed.

E. Fees

1. ☐ Fee Exempt: No filing fee shall be assessed for projects of any city, town, county, or district of the Commonwealth, federally recognized Indian tribe housing authority, municipal housing authority, or the Massachusetts Bay Transportation Authority.

Applicants must submit the following information (in addition to pages 1 and 2 of the NOI Wetland Fee Transmittal Form) to confirm fee payment:

2. Municipal Check Number

3. Check date

4. State Check Number

5. Check date

6. Payor name on check: First Name

7. Payor name on check: Last Name



WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

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F. Signatures and Submittal Requirements

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the wetlands regulations, 310 CMR 10.05(5)(a).

I further certify under penalties of perjury that all abutters were notified of this application, pursuant to the requirements of M.G.L. c. 131, § 40. Notice must be made by Certificate of Mailing or in writing by hand delivery or certified mail (return receipt requested) to all abutters within 100 feet of the property line of the project location.

1. Signature of Applicant

2. Date

3. Signature of Property Owner (if different)

4. Date

5. Signature of Representative (if any)

6. Date

For Conservation Commission:

Two copies of the completed Notice of Intent (Form 3), including supporting plans and documents, two copies of the NOI Wetland Fee Transmittal Form, and the city/town fee payment, to the Conservation Commission by certified mail or hand delivery.

For MassDEP:

One copy of the completed Notice of Intent (Form 3), including supporting plans and documents, one copy of the NOI Wetland Fee Transmittal Form, and a **copy** of the state fee payment to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery.

Other:

If the applicant has checked the "yes" box in any part of Section C, Item 3, above, refer to that section and the Instructions for additional submittal requirements.

The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
NOI Wetland Fee Transmittal Form
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A. Applicant Information

1. Location of Project:

47 Spy Pond Lane (Lot B)

a. Street Address

Arlington

b. City/Town

c. Check number

d. Fee amount

2. Applicant Mailing Address:

Scott

a. First Name

Seaver

b. Last Name

Seaver Construction

c. Organization

215 Lexington Street

d. Mailing Address

Woburn

e. City/Town

MA

f. State

01801

g. Zip Code

h. Phone Number

i. Fax Number

j. Email Address

3. Property Owner (if different):

a. First Name

b. Last Name

c. Organization

d. Mailing Address

e. City/Town

f. State

g. Zip Code

h. Phone Number

i. Fax Number

j. Email Address

B. Fees

Fee should be calculated using the following process & worksheet. **Please see Instructions before filling out worksheet.**

Step 1/Type of Activity: Describe each type of activity that will occur in wetland resource area and buffer zone.

Step 2/Number of Activities: Identify the number of each type of activity.

Step 3/Individual Activity Fee: Identify each activity fee from the six project categories listed in the instructions.

Step 4/Subtotal Activity Fee: Multiply the number of activities (identified in Step 2) times the fee per category (identified in Step 3) to reach a subtotal fee amount. Note: If any of these activities are in a Riverfront Area in addition to another Resource Area or the Buffer Zone, the fee per activity should be multiplied by 1.5 and then added to the subtotal amount.

Step 5/Total Project Fee: Determine the total project fee by adding the subtotal amounts from Step 4.

Step 6/Fee Payments: To calculate the state share of the fee, divide the total fee in half and subtract \$12.50. To calculate the city/town share of the fee, divide the total fee in half and add \$12.50.

To calculate filing fees, refer to the category fee list and examples in the instructions for filling out WPA Form 3 (Notice of Intent).



Massachusetts Department of Environmental Protection
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NOI Wetland Fee Transmittal Form
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

B. Fees (continued)

Step 1/Type of Activity	Step 2/Number of Activities	Step 3/Individual Activity Fee	Step 4/Subtotal Activity Fee
Single Family Dwelling	(1)	\$500.00	\$500.00
Step 5/Total Project Fee:			\$500.00

Step 6/Fee Payments:

Total Project Fee:	\$500.00
	a. Total Fee from Step 5
State share of filing Fee:	\$237.50
	b. 1/2 Total Fee less \$12.50
City/Town share of filing Fee:	262.50
	c. 1/2 Total Fee plus \$12.50

C. Submittal Requirements

- a.) Complete pages 1 and 2 and send with a check or money order for the state share of the fee, payable to the Commonwealth of Massachusetts.

Department of Environmental Protection
Box 4062
Boston, MA 02211

- b.) **To the Conservation Commission:** Send the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and the city/town fee payment.

To MassDEP Regional Office (see Instructions): Send a copy of the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and a **copy** of the state fee payment. (E-filers of Notices of Intent may submit these electronically.)

Description of Work

Notice of Intent Filing 47 Spy Pond Lane (Lot 2/Lot B) Arlington, MA

EXISTING CONDITIONS

The 47 Spy Pond Lane property consisted of an existing single family house located on the north side of Spy Pond Lane, above the southern Bank of Spy Pond. Currently, the original dwelling has been demolished, and the foundation for a new single family home has been constructed. Framing and construction is ongoing atop of the newly poured foundation. The following photos show the condition of the lot on February 17, 2020:





WETLANDS DELINEATION

Wetland Resource Areas on the Lot

The wetlands on the property were delineated by Mary Trudeau in the early spring of 2016. Portions of the delineation were revised in response to comments from the Conservation Commission during an earlier filing for the property. Statutory wetlands on, or adjacent to, the property include Bordering Vegetated Wetland; Bank; Land Under Waterbody; and Bordering Land Subject to Flooding. Jurisdictional buffer zones have been calculated from the Bank of the waterbody, the Bordering Vegetated Wetlands, and/or off of the wetlands on the adjacent Lot 1/Lot A. This delineation was affirmed in the Superseding Orders of Conditions issued for the development of Lots 1/2 (A/B) in 2016, and subsequently in the Orders of Conditions issued by the Arlington Conservation Commission in 2019 under the local wetlands bylaw.

For the purposes of this filing, the mean annual high water level has been estimated at between elevations (3 and 4). This corresponds to the first discernable break in slope observed at this site. FEMA has determined the 100 year flood elevation to fall along the Bank of the Pond, but does not give a specific elevation on the maps for this site (attached). This delineation was also affirmed in the Superseding Order of Conditions issued by the Department, and the subsequent local Orders of Conditions.

WORK INCLUDED IN THE NOTICE OF INTENT

Construction of a Single Family Dwelling

Work included in this Notice of Intent consists of the construction of a single family home located on a portion of the property. This work is currently regulated under an Order of Conditions issued under the local Arlington Wetlands Protection bylaw. The expiration of the Superseding Order of Conditions in December of 2019 has left this project in need of an Order of Conditions issued under the Massachusetts Wetlands Protection Act.

At the time of the expiration, the applicant had poured the foundation for the new home, and had begun framing the structure. With the agreement of the Arlington Conservation Commission, the applicant has permission to continue the framing and structural work atop of the new foundation. The applicant has agreed to defer any earthwork, and ceased all other activities on this site, until the Arlington Conservation Commission has issued an Order of Conditions under the Massachusetts Wetlands Protection Act. The following photos show the current stockpiling of building materials outside of jurisdictional areas, and the ongoing work atop the new foundation:



With the exception of plantings within the 0 to 25 foot buffer zone, the application does not include any changes in the landscaping within seventy feet of the Bank resource area. The applicant is proposing the installation of the storm water infiltration system within the Adjacent Upland Resource Area, but no portion of this system is located within 65 feet of the wetlands associated with the Pond. As agreed, the sizing of the system reflects the larger footprint dwelling proposed in earlier filings.

MITIGATING MEASURES

RESTORATION OF THE 0 TO 25 FOOT BUFFER ZONE WITH NATIVE SHRUBS

The application includes a restoration plan designed to remove lawn areas, and restore a thicket type vegetation to the 0 to 25 foot buffer zone. This plan includes the planting of a variety of native, woody shrubs within the 0 to 25 foot buffer zone, leaving only an eight foot wide foot path open between the 25 foot buffer zone line and the waterbody.

Shrubs will be planted at 6'-10' foot centers, and will consist of the following varieties of woody plants:

The following plants have been included in this planting area:

(10)	Sweet Pepperbush	(Clethra alnifolia)
(10)	Arrowwood	(Viburnum recognitum)
(10)	Silky Dogwood	(Cornus amomum)
(5)	Witch hazel	(Hamamelis virginiana)
(3)	Shadbush	(Amelanchier canadense)
(30)	Lowbush Blueberry	(Vaccinium angustifolia)

As a portion of this lot includes an area of "Bordering Vegetated Wetland" within the existing lawn area, plantings listed above and planted in this portion of the lawn, will restore a Bordering Vegetated Wetland plant community to the resource area. The applicant estimates the square footage of this wetland restoration to be approximately 278 square feet, and the square footage of buffer zone restoration to be approximately 875 square feet. The wetland restoration portion of the restoration will be planted with Arrowwood Viburnums (FACW). The remainder of the proposed planting will be spread across the restoration area.

CONSTRUCTION OF FREE STANDING STONE WALL AT 25' BUFFER ZONE

The applicant will construct a free standing, field stone wall, with a height of at least 2.5 feet along the 25 foot buffer zone. The wall will begin 2 feet to the south of the northern property line, and run southerly to the edge of the 8 ' foot wide pedestrian walkway straddling the property line between Lots 1 and 2.

DOCK RELOCATION

The project locus currently has a small wooden dock, currently located on Lot 1. The applicant agrees to pursue a waterways license modification to relocate the dock to run perpendicular to the property line between lots 1 and 2. This will allow the dock to be accessed by the walking easement, straddling the property line between lots 1 and 2.

STORMWATER MANAGEMENT SYSTEM

The proposed site plan includes mitigation for the increased surface water flows and impervious surfaces on the site. The proposal includes a subsurface infiltration system designed to capture and infiltrate roof runoff, via a closed gutter system. This mitigation is proposed outside of the 0 to 50 foot buffer zone, and provides recharge capacity for the development. The system was designed and sized to accommodate the original foot print of the home proposed for this lot, and has not been reduced in size for the currently proposed footprint. This results in approximately ten percent excess capacity within the system for each of the design storm events.

EROSION AND SEDIMENTATION CONTROLS

Prior to any construction on the site, the limit of work line will be created through the use of a row of 12 inch diameter filter soxx filled with composted wood mulch, backed by an entrenched row of siltation control fencing. The controls will be used to insulate the various work areas from the down gradient wetlands, and will be maintained throughout the construction process. It is expected that a filter soxx will be set along the 25 foot buffer zone. As work areas vary during the construction, additional check dams and barriers may need to be added to protect recently graded areas. The photo below shows the installation on the site:



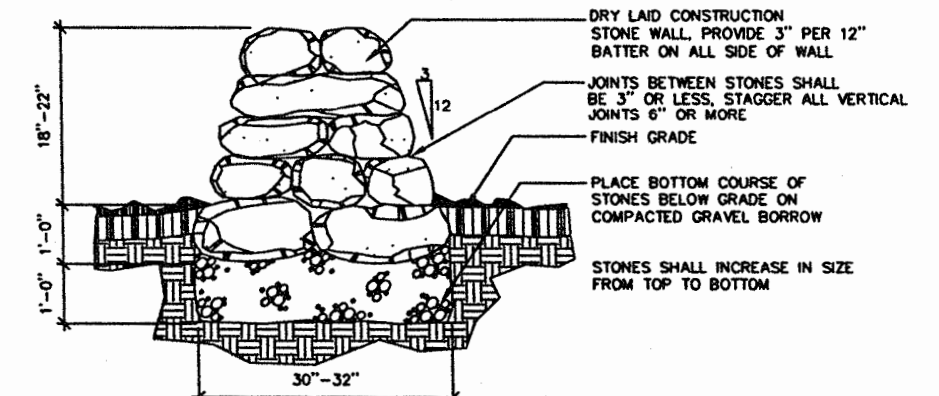
Stockpile areas for the spoils on this site are currently set upon a portion of Lot 1. While the proposed foundation work resulted in temporary or short term stockpiles of earth materials, the applicant will have covered the spoils with tarps and has set erosion controls at both the 25 foot buffer zone and above the top of the Bank of Spy Pond. Long term stockpiles will be bounded by staked straw bales or wattles, and excess soil materials will be hauled from the site. The surface of the work area will be loamed, planted and/or hydro seeded at the completion of the construction, and erosion controls maintained throughout the winter months.

SCALE: 1 IN. = 10 FT. MARCH 7, 2019

I CERTIFY THAT THE BUILDINGS ARE
LOCATED AS SHOWN AND THAT THIS
PLOT PLAN IS THE RESULT OF AN
INSTRUMENT SURVEY.

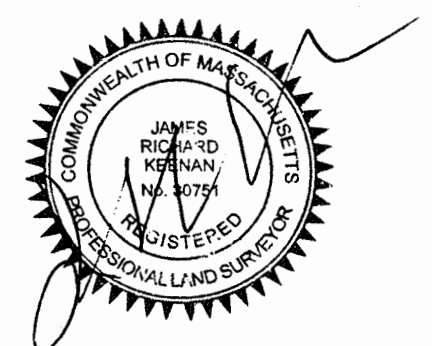
PROPOSED BASEMENT FLOOR=10.0
MIDPOINT=14.9
BASEMENT CEILING=19.75
PROPOSED FIRST FLOOR=21.0
EXISTING AVERAGE GRADE=15.25
PROPOSED ROOF HEIGHT = 34.75'
PROPOSED PEAK = 50.0
MAX. PEAK = 50.25
PROPOSED GARAGE FLR.=19.0
EXISTING BUILDING COVER= 18.2%
PROPOSED BUILDING COVER= 23.7%
EXISTING IMPERVIOUS = 2442 S.F.
PROPOSED IMPERVIOUS = 2065 S.F.
EXISTING IMPERVIOUS (100'BUFFER)= 298 S.F.
PROPOSED IMPERVIOUS (100'BUFFER)= 210 S.F.
AREA WITHIN 25'BUFFER ZONE=1129 S.F.

- 1) WATER SERVICE TO BE 1" TYPE "K" COPPER.
- 2) SEWER SERVICE TO BE 6" PVC.
- 3) WATER AND SEWER LATERALS SHALL BE 10' APART (min).
- 4) PROPOSED WATER TO BE CONNECTED TO EXISTING SERVICE.
- 5) PROPOSED SEWER TO BE CONNECTED TO EXISTING SERVICE.
- 6) LOT LOCATED IN FLOOD ZONE C. MAP 25017C0419E.
- 7) LAWN GRASS TO BE REMOVED FROM THE 0 TO 25 FOOT BUFFER ZONE AND THE AREA TOP DRESSED WITH A COMPOSTED LEAF LITTER MATERIAL, APPLIED TO A DEPTH OF 3-4 INCHES ACROSS THE RESTORATION AREA.

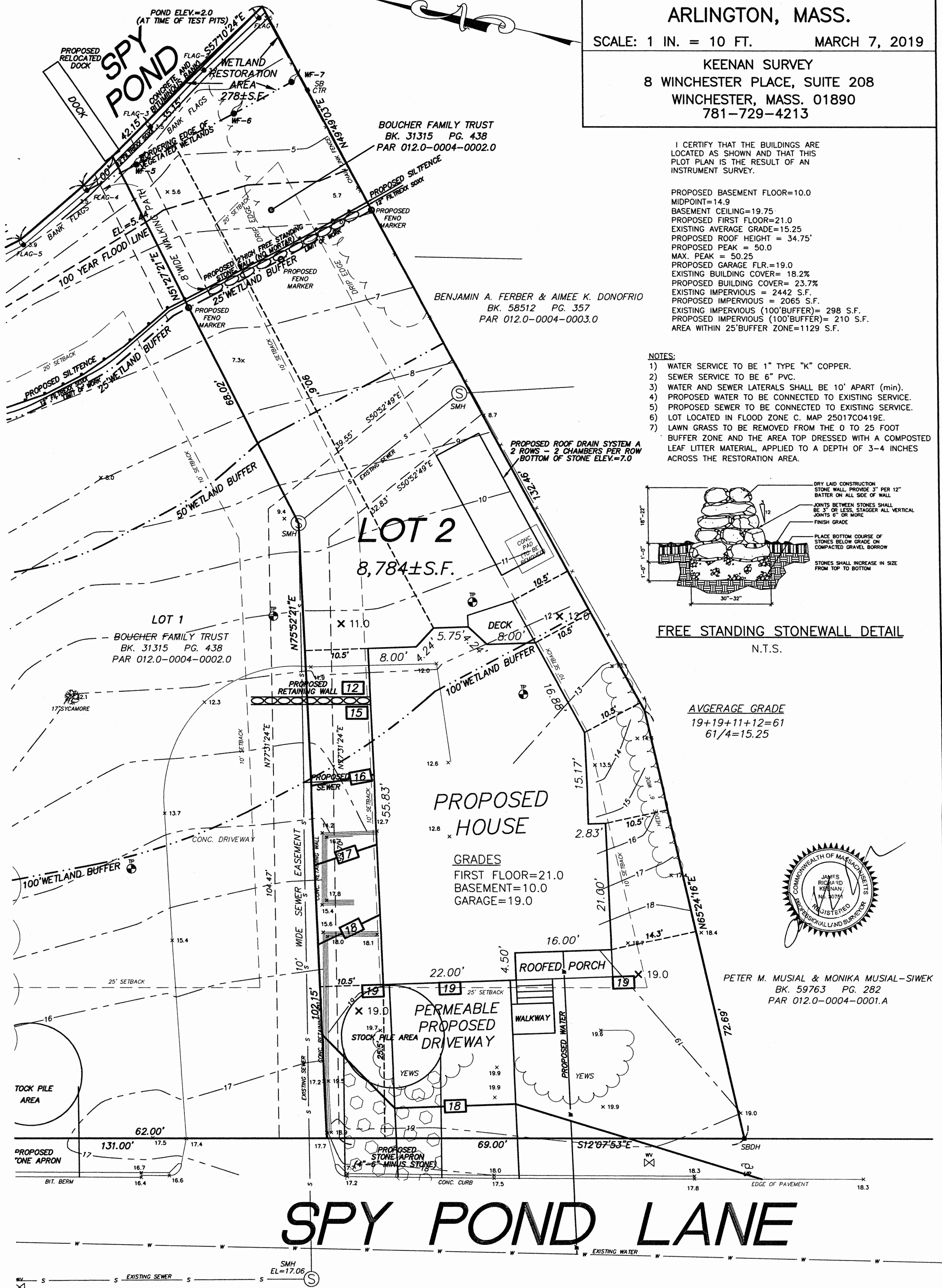


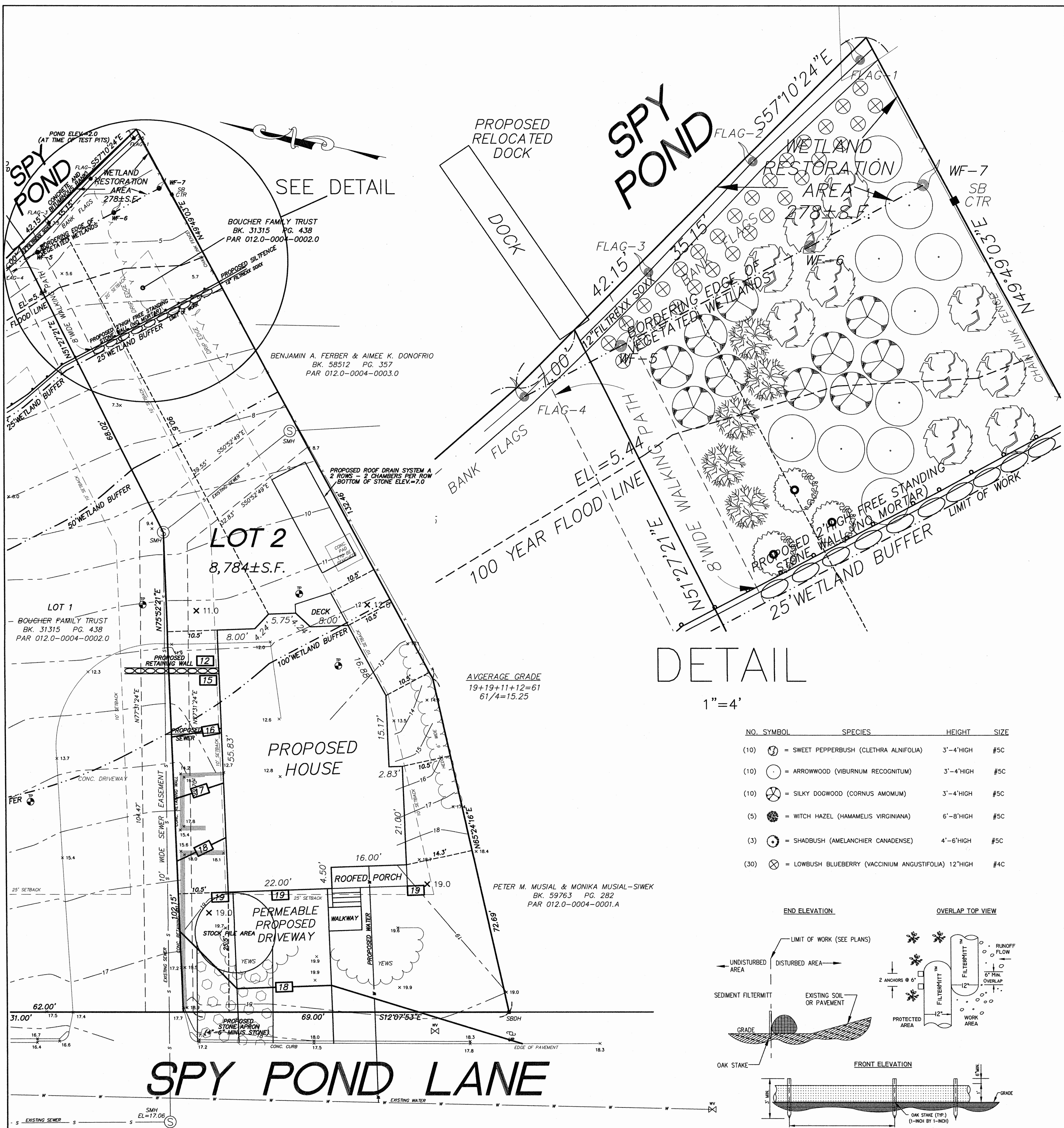
FREE STANDING STONEWALL DETAIL
N.T.S.

AVGERAGE GRADE
 $19+19+11+12=61$
 $61/4=15.25$



PETER M. MUSIAL & MONIKA MUSIAL-SIWEK
BK. 59763 PG. 282
PAR 012.0-0004-0001.A

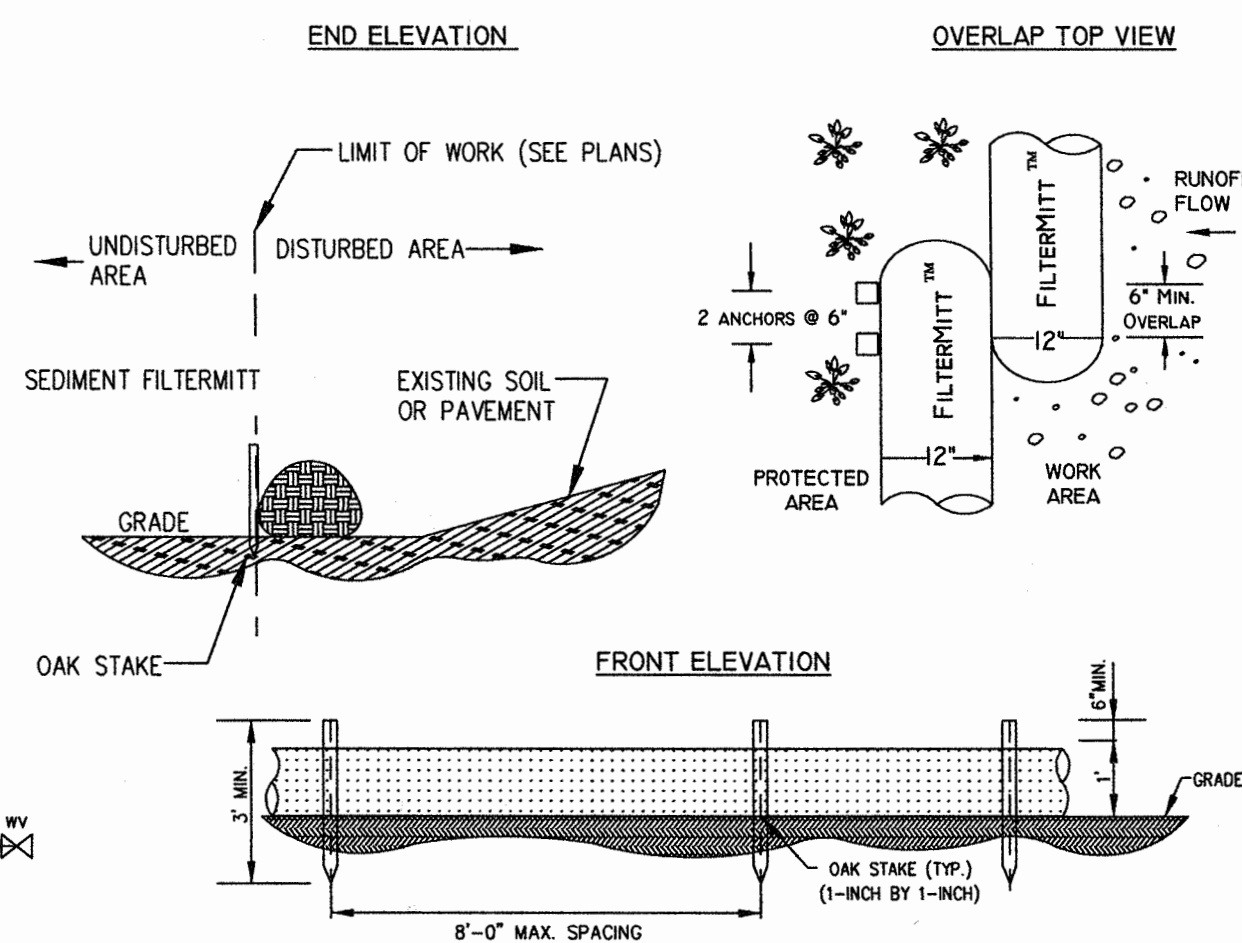




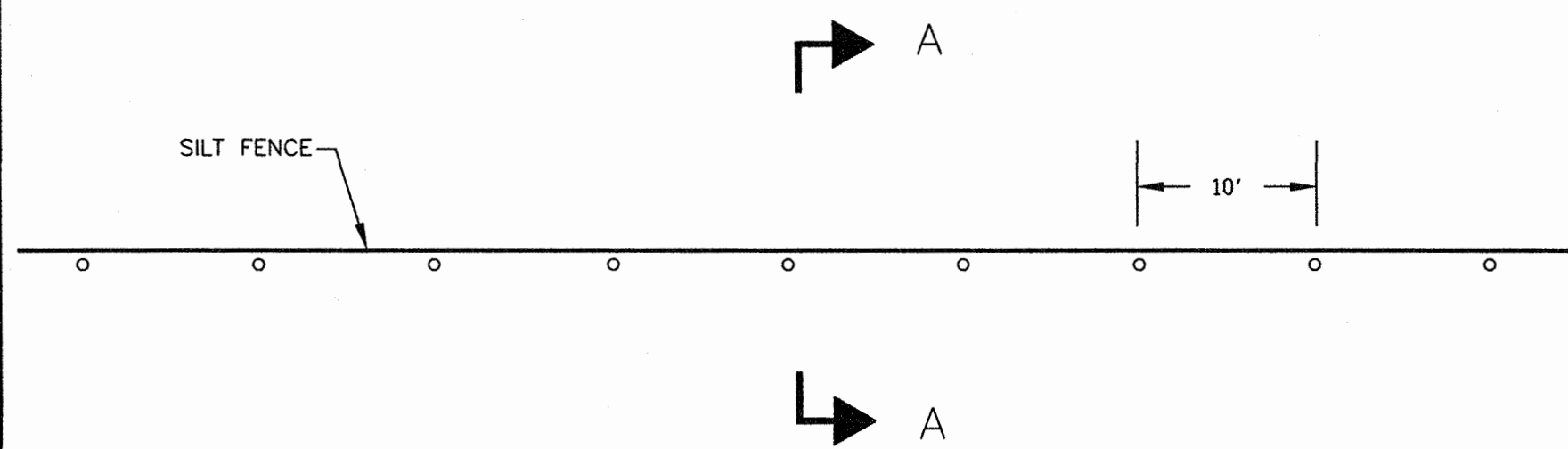
DETAIL

1"=4'

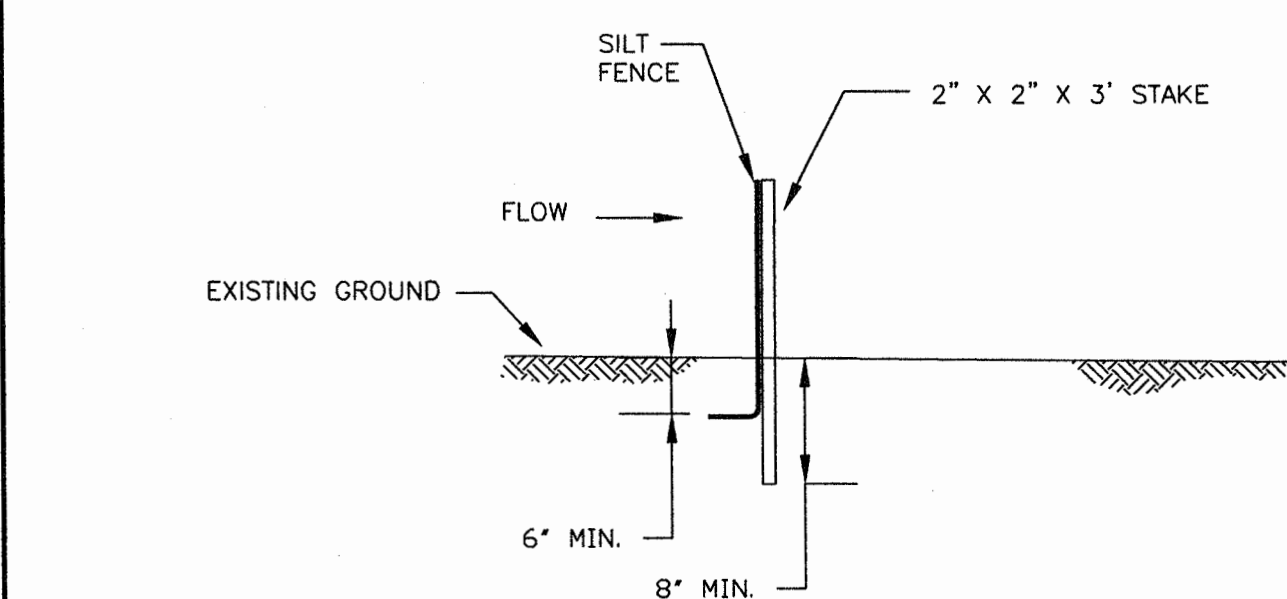
NO.	SYMBOL	SPECIES	HEIGHT	SIZE
(10)		SWEET PEPPERBUSH (CLETHRA ALNIFOLIA)	3'-4' HIGH	#5C
(10)		ARROWWOOD (VIBURNUM RECOGNITUM)	3'-4' HIGH	#5C
(10)		SILKY DOGWOOD (CORNUS AMOMUM)	3'-4' HIGH	#5C
(5)		WITCH HAZEL (HAMAMELIS VIRGINIANA)	6'-8' HIGH	#5C
(3)		SHADBUSH (AMELANCHIER CANADENSE)	4'-6' HIGH	#5C
(30)		LOWBUSH BLUEBERRY (VACCINIUM ANGUSTIFOLIA)	12' HIGH	#4C



EROSION CONTROL DETAIL
N.T.S.

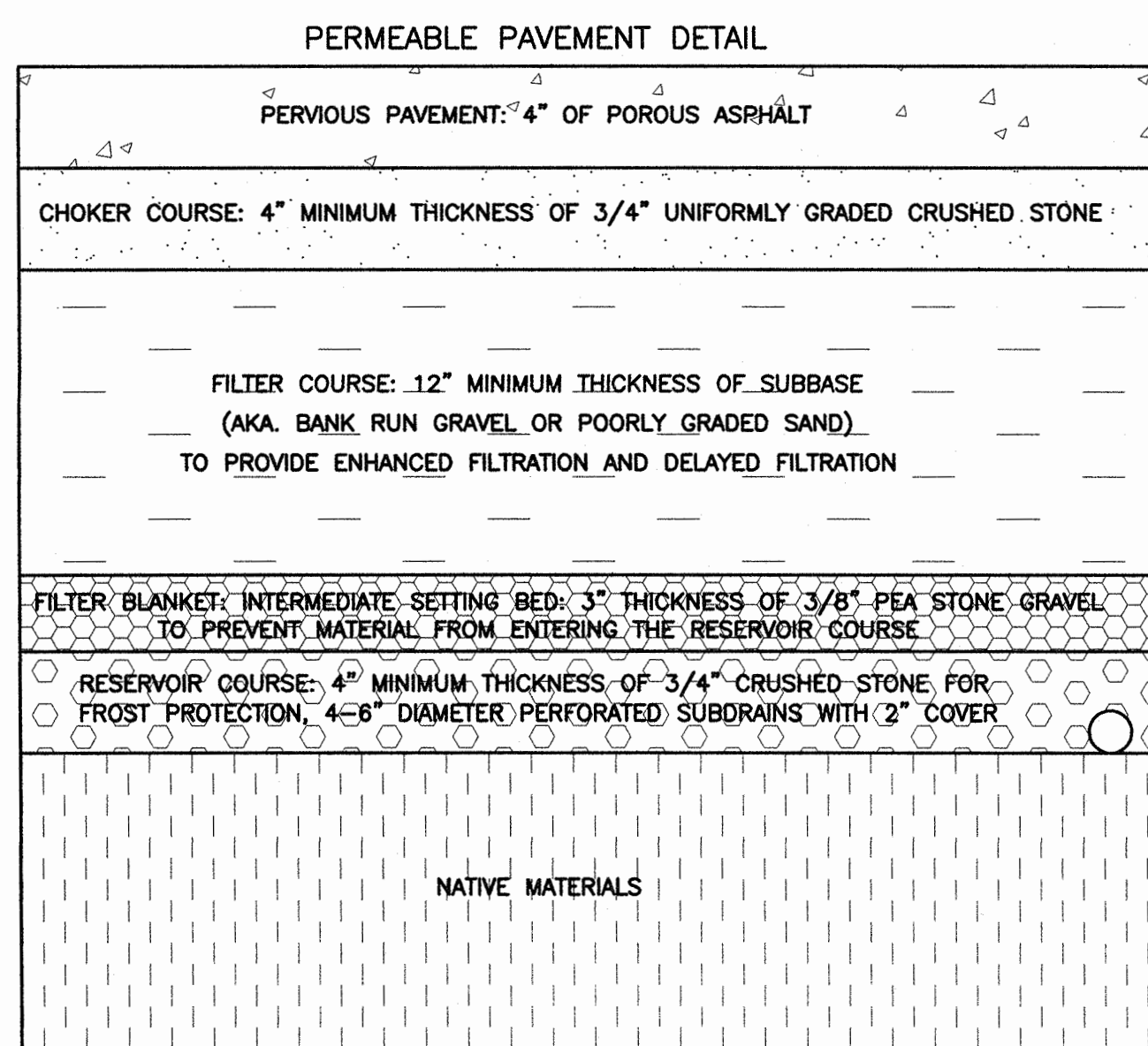


PLAN VIEW



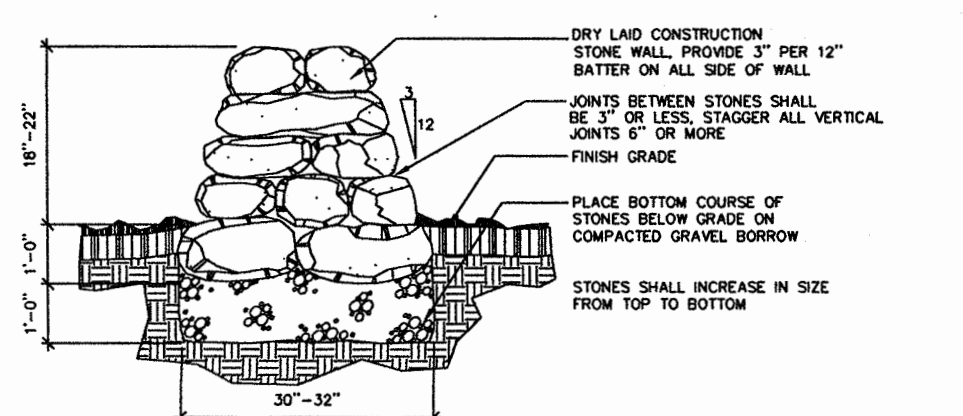
SECTION A-A

SILT FENCE PLAN

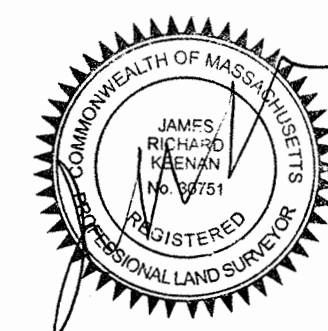


PROPOSED BASEMENT FLOOR=10.0
MIDPOINT=14.9
BASEMENT CEILING=19.75
PROPOSED FIRST FLOOR=21.0
EXISTING AVERAGE GRADE=15.25
PROPOSED ROOF HEIGHT=34.75
PROPOSED PEAK=50.0
MAX. PEAK=50.25
PROPOSED GARAGE FLR=19.0
EXISTING BUILDING COVER=18.2%
PROPOSED BUILDING COVER=23.7%
EXISTING IMPERVIOUS=2442 S.F.
PROPOSED IMPERVIOUS=2065 S.F.
EXISTING IMPERVIOUS (100' BUFFER)=298 S.F.
PROPOSED IMPERVIOUS (100' BUFFER)=210 S.F.
AREA WITHIN 25' BUFFER ZONE=1129 S.F.

- NOTES:
- 1) WATER SERVICE TO BE 1" TYPE "K" COPPER.
 - 2) SEWER SERVICE TO BE 6" PVC.
 - 3) WATER AND SEWER LATERALS SHALL BE 10' APART (MIN).
 - 4) PROPOSED WATER TO BE CONNECTED TO EXISTING SERVICE.
 - 5) PROPOSED SEWER TO BE CONNECTED TO EXISTING SERVICE.
 - 6) LOT LOCATED IN FLOOD ZONE C. MAP 25017C0419E.
 - 7) LAWN GRASS TO BE REMOVED FROM THE 0 TO 25 FOOT BUFFER ZONE AND THE AREA TOP DRESSED WITH A COMPOSTED LEAF LITTER MATERIAL, APPLIED TO A DEPTH OF 3-4 INCHES ACROSS THE RESTORATION AREA.



FREE STANDING STONEWALL DETAIL
N.T.S.



I CERTIFY THAT THE BUILDINGS ARE
LOCATED AS SHOWN AND THAT THIS
PLOT PLAN IS THE RESULT OF AN
INSTRUMENT SURVEY.

PLANTING PLAN
IN
ARLINGTON, MASS.
SCALE: 1 IN. = 10 FT. MARCH 7, 2019

KEENAN SURVEY
8 WINCHESTER PLACE, SUITE 208
WINCHESTER, MASS. 01890
781-729-4213

ALAN ENGINEERING, L.L.C.

288 Littleton Road, Suite 31
Westford, MA 01886
(978) 577-6444
alan.eng@verizon.net

June 28, 2016

Scott Seaver
Seaver Construction, Inc.
215 Lexington Street
Woburn, MA 01801

Ref: Drainage Analysis
47 Spy Pond Lane – Lot 2
Arlington, MA

Dear Mr. Seaver:

Alan Engineering has prepared the following drainage analysis of the proposed house on Lot 2 at 47 Spy Pond Lane in Arlington, MA.

This analysis compares runoff generated from the existing site to the runoff that will be generated from the site after the construction of the new house. In accordance with the requirements of the Arlington Conservation Commission the 10-year, 25-year, and 100-year storm events were analyzed. The storm events were 24-hour rainfalls with a Type III rainfall distribution. The rainfall amounts were based on the "Cornell Study".

The proposed lot will contain 8,784 square feet of land. Under the existing conditions the lot contains 2,406 square feet of impervious area. The proposed site will contain a total of 2,588 square feet of impervious area.

The increase in impervious area will result in an increase in the rate and volume of runoff. In order to mitigate the increase a subsurface roof drain infiltration system is proposed. A roof gutter and downspout system will collect all roof runoff and discharge it into a subsurface system located at the rear of the proposed house. The system will collect and recharge a portion of the roof runoff that is slightly greater than the increase in runoff volume generated by the proposed site development. The result is a decrease in both the peak rate and total volume of runoff from the site. The results of the analysis are summarized in the table below.

Test pits were excavated on the lot on June 28, 2016 to determine the permeability of the soil and the depth to groundwater. All test pits had approximately 5 feet of fill above the original ground. The underlying native soil is fine sand. A percolation test yielded a rate of 1 minute per inch. This is indicative of hydrologic soil group (HSG) A. The estimated seasonal high groundwater ranged from 54 inches to 66 inches below the ground surface in 3 of the 4 test holes, and 90 inches below the ground surface in the higher of the 4 test holes.

Comparative Hydrologic Summary
47 Spy Pond Lane - Lot 2
Arlington, MA
June 28, 2016

10 Year Storm - 4.80 inches

Point of Analysis	Pre-Development		Post Development	
	Peak Rate (c.f.s.)	Volume (ac-ft)	Peak Rate (c.f.s.)	Volume (ac-ft)
Total Runoff	0.05	0.008	0.01	0.003

50 Year Storm - 7.06 inches

Point of Analysis	Pre-Development		Post Development	
	Peak Rate (c.f.s.)	Volume (ac-ft)	Peak Rate (c.f.s.)	Volume (ac-ft)
Total Runoff	0.29	0.024	0.13	0.013

100 Year Storm - 8.48 inches

Point of Analysis	Pre-Development		Post Development	
	Peak Rate (c.f.s.)	Volume (ac-ft)	Peak Rate (c.f.s.)	Volume (ac-ft)
Total Runoff	0.49	0.037	0.25	0.023

Please feel free to contact me with any questions or comments.

Very truly yours,

ALAN ENGINEERING, L.L.C.



Mark A. Slegger, P.E.
Manager

ALAN ENGINEERING, L.L.C.

SOIL EVALUATION REPORT

Job Number 1140 Client SEAUER CONSTRUCTION
 Site Address 47 SPY POND LANE Town ARLINGTON

Current Use RESIDENTIAL
 Site Description SINGLE FAMILY RESIDENCE
 Land Form GROUND MORRAINE
 Vegetation LAWN
 Water Supply TOWN

Deep Hole No AE-1 Date 6/28/2016
 Soil Evaluator M. SLEGER Temperature 65°
 Local Official N/A Weather CLOUDY - LIGHT RAIN

Horizon	Depth	Classification	Color	Comments		
FILL	0-54"	SANDY LOAM	—	SOME GRAVEL		
C	54-126	FINE SAND	10YR 5/4			
Seepage	Standing	Mottling	Color	ESHW	Roots	Refusal
108"	—	60"	2.5Y 6/3	60"	72"	—

Deep Hole No AE-2

Horizon	Depth	Classification	Color	Comments		
FILL	0-60"	SANDY FILL	—	MOTTLING IN SAND FILL		
A	60-69"	SANDY LOAM	10YR 2/2			
B	69-78"	FINE SAND	10YR 4/6			
C	78-120	FINE SAND	10YR 5/4			
Seepage	Standing	Mottling	Color	ESHW	Roots	Refusal
108"	108"	54"		54"	78"	—

Deep Hole No AE-3

Horizon	Depth	Classification	Color	Comments		
FILL	0-60"	SANDY FILL	—			
C ₁	60-138"	FINE SAND	10YR 5/4			
Seepage	Standing	Mottling	Color	ESHW	Roots	Refusal
—	—	90"	2.5Y 6/3	90"	96"	—

Deep Hole No AE-4

Horizon	Depth	Classification	Color	Comments		
FILL	0-66"	SANDY FILL				
C ₁	66-114"	FINE SAND	10YR 5/4			
Seepage	Standing	Mottling	Color	ESHW	Roots	Refusal
—	—	66"	2.5Y 6/3	66"		

ALAN ENGINEERING, L.L.C.

SOIL EVALUATION REPORT

Job Number 1140
Site Address 47 SPY POND LANE

Client SCAVER CONST.
Town ARLINGTON

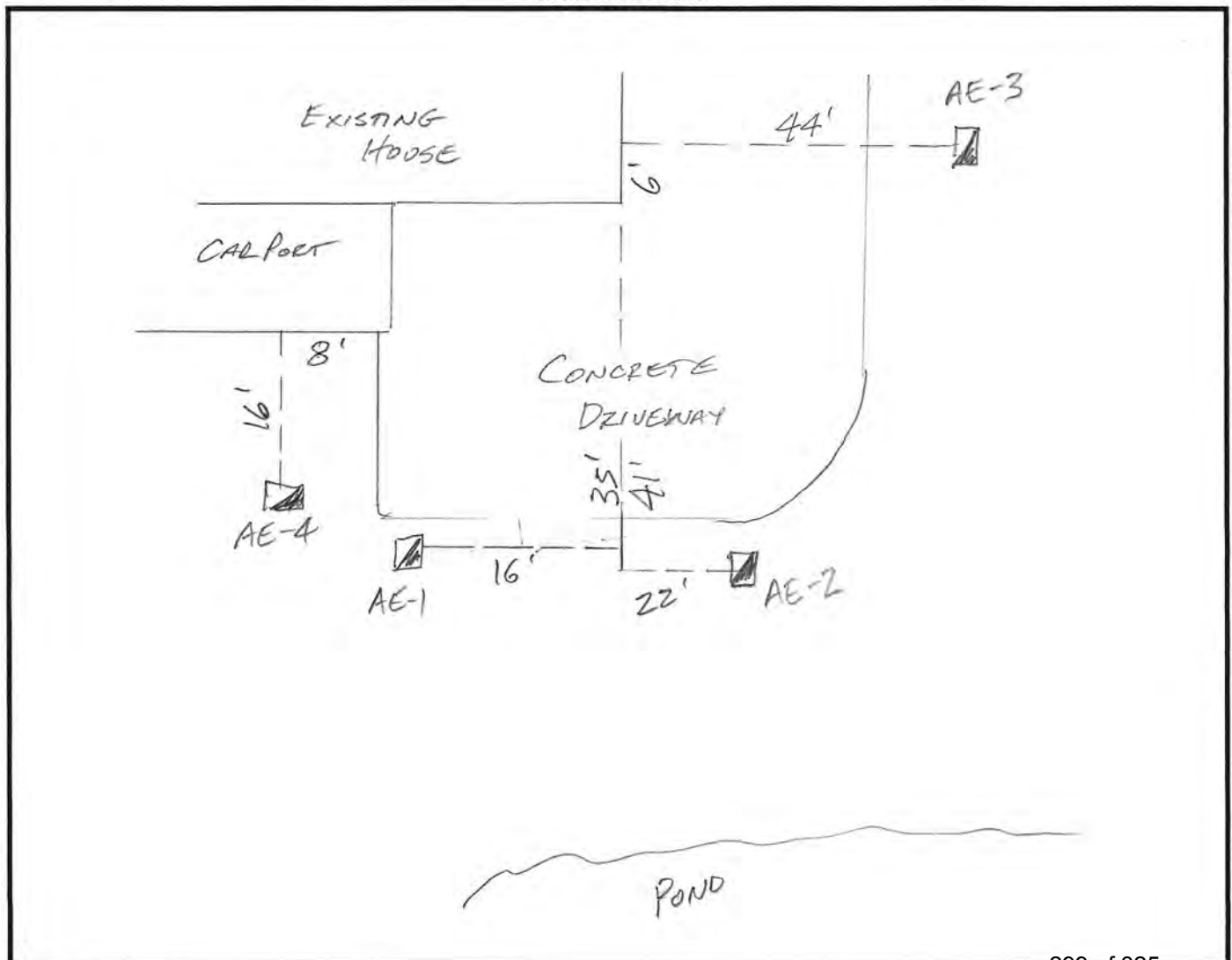
PERCOLATION TESTS

Soil Evaluator M. SLEGER
Local Official N/A

Date 6/28/2016 Temperature 65°
Weather LIGHT RAIN

Deep Hole No	AE-1				
Depth to Bottom	84"				
Soil Classification	FINE SAND				
Start Pre Soak	9:02				
Start of Test - 12"	9:17				
Time at 9"	9:21				
Time at 6"	9:24				
Time from 9" to 6"	3 MIN				
Percolation Rate	1 MIN/INCH				

SITE SKETCH



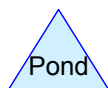
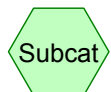
E
Existing Runoff

P2
Roof Runoff

P
Total Proposed Runoff

RD1
Roof Drain System

P1
Proposed Yard Runoff



Lot 2 Drainage Analysis

Prepared by ALAN Engineering, L.L.C.

HydroCAD® 10.00-16 s/n 04219 © 2015 HydroCAD Software Solutions LLC

Runoff Comparison - Lot 2

Type III 24-hr 10-Year Storm Rainfall=4.80"

Page 2

Summary for Subcatchment E: Existing Runoff

Runoff = 0.05 cfs @ 12.14 hrs, Volume= 0.008 af, Depth> 0.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Storm Rainfall=4.80"

Area (sf)	CN	Adj	Description
2,406	98		Unconnected pavement, HSG A
6,378	39		>75% Grass cover, Good, HSG A
8,784	55	47	Weighted Average, UI Adjusted
6,378			72.61% Pervious Area
2,406			27.39% Impervious Area
2,406			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment P1: Proposed Yard Runoff

Runoff = 0.01 cfs @ 12.39 hrs, Volume= 0.003 af, Depth> 0.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Storm Rainfall=4.80"

Area (sf)	CN	Adj	Description
588	98		Unconnected pavement, HSG A
6,196	39		>75% Grass cover, Good, HSG A
6,784	44	42	Weighted Average, UI Adjusted
6,196			91.33% Pervious Area
588			8.67% Impervious Area
588			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment P2: Roof Runoff

Runoff = 0.22 cfs @ 12.07 hrs, Volume= 0.017 af, Depth> 4.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Storm Rainfall=4.80"

Lot 2 Drainage Analysis

Prepared by ALAN Engineering, L.L.C.

HydroCAD® 10.00-16 s/n 04219 © 2015 HydroCAD Software Solutions LLC

Runoff Comparison - Lot 2

Type III 24-hr 10-Year Storm Rainfall=4.80"

Page 3

Area (sf)	CN	Description
2,000	98	Roofs, HSG A
2,000		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Reach P: Total Proposed Runoff

Inflow Area = 0.202 ac, 29.46% Impervious, Inflow Depth > 0.20" for 10-Year Storm event
Inflow = 0.01 cfs @ 12.39 hrs, Volume= 0.003 af
Outflow = 0.01 cfs @ 12.39 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Pond RD1: Roof Drain System

Inflow Area = 0.046 ac, 100.00% Impervious, Inflow Depth > 4.56" for 10-Year Storm event
Inflow = 0.22 cfs @ 12.07 hrs, Volume= 0.017 af
Outflow = 0.05 cfs @ 11.72 hrs, Volume= 0.017 af, Atten= 78%, Lag= 0.0 min
Discarded = 0.05 cfs @ 11.72 hrs, Volume= 0.017 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 270.02' @ 12.46 hrs Surf.Area= 262 sf Storage= 153 cf

Plug-Flow detention time= 14.3 min calculated for 0.017 af (100% of inflow)
Center-of-Mass det. time= 14.2 min (761.5 - 747.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	269.00'	198 cf	11.25'W x 23.25'L x 2.54'H Field A 665 cf Overall - 169 cf Embedded = 496 cf x 40.0% Voids
#2A	269.50'	169 cf	Cultec R-150XLHD x 6 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 3 rows
		367 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	269.00'	8.270 in/hr Exfiltration over Horizontal area
#2	Primary	271.00'	4.0" Round Culvert X 2.00 L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 271.00' / 270.90' S= 0.0200 ' S= 0.0200 ' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf

Lot 2 Drainage Analysis

Prepared by ALAN Engineering, L.L.C.

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Runoff Comparison - Lot 2
Type III 24-hr 10-Year Storm Rainfall=4.80"

Page 4

Discarded OutFlow Max=0.05 cfs @ 11.72 hrs HW=269.03' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=269.00' (Free Discharge)
↑**2=Culvert** (Controls 0.00 cfs)

Lot 2 Drainage Analysis

Prepared by ALAN Engineering, L.L.C.

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Runoff Comparison - Lot 2

Type III 24-hr 50-Year Storm Rainfall=7.06"

Page 5

Summary for Subcatchment E: Existing Runoff

Runoff = 0.29 cfs @ 12.09 hrs, Volume= 0.024 af, Depth> 1.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Year Storm Rainfall=7.06"

Area (sf)	CN	Adj	Description
2,406	98		Unconnected pavement, HSG A
6,378	39		>75% Grass cover, Good, HSG A
8,784	55	47	Weighted Average, UI Adjusted
6,378			72.61% Pervious Area
2,406			27.39% Impervious Area
2,406			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment P1: Proposed Yard Runoff

Runoff = 0.13 cfs @ 12.11 hrs, Volume= 0.013 af, Depth> 1.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Year Storm Rainfall=7.06"

Area (sf)	CN	Adj	Description
588	98		Unconnected pavement, HSG A
6,196	39		>75% Grass cover, Good, HSG A
6,784	44	42	Weighted Average, UI Adjusted
6,196			91.33% Pervious Area
588			8.67% Impervious Area
588			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment P2: Roof Runoff

Runoff = 0.33 cfs @ 12.07 hrs, Volume= 0.026 af, Depth> 6.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Year Storm Rainfall=7.06"

Lot 2 Drainage Analysis

Prepared by ALAN Engineering, L.L.C.

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Runoff Comparison - Lot 2

Type III 24-hr 50-Year Storm Rainfall=7.06"

Page 6

Area (sf)	CN	Description
2,000	98	Roofs, HSG A
2,000		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Reach P: Total Proposed Runoff

Inflow Area = 0.202 ac, 29.46% Impervious, Inflow Depth > 0.79" for 50-Year Storm event
Inflow = 0.13 cfs @ 12.11 hrs, Volume= 0.013 af
Outflow = 0.13 cfs @ 12.11 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Pond RD1: Roof Drain System

Inflow Area = 0.046 ac, 100.00% Impervious, Inflow Depth > 6.82" for 50-Year Storm event
Inflow = 0.33 cfs @ 12.07 hrs, Volume= 0.026 af
Outflow = 0.05 cfs @ 11.63 hrs, Volume= 0.026 af, Atten= 85%, Lag= 0.0 min
Discarded = 0.05 cfs @ 11.63 hrs, Volume= 0.026 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 270.88' @ 12.54 hrs Surf.Area= 262 sf Storage= 296 cf

Plug-Flow detention time= 31.7 min calculated for 0.026 af (100% of inflow)
Center-of-Mass det. time= 31.6 min (773.1 - 741.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	269.00'	198 cf	11.25'W x 23.25'L x 2.54'H Field A 665 cf Overall - 169 cf Embedded = 496 cf x 40.0% Voids
#2A	269.50'	169 cf	Cultec R-150XLHD x 6 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 3 rows
		367 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	269.00'	8.270 in/hr Exfiltration over Horizontal area
#2	Primary	271.00'	4.0" Round Culvert X 2.00 L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 271.00' / 270.90' S= 0.0200 ' S= 0.0200 ' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf

Lot 2 Drainage Analysis

Prepared by ALAN Engineering, L.L.C.

HydroCAD® 10.00-16 s/n 04219 © 2015 HydroCAD Software Solutions LLC

Runoff Comparison - Lot 2

Type III 24-hr 50-Year Storm Rainfall=7.06"

Page 7

Discarded OutFlow Max=0.05 cfs @ 11.63 hrs HW=269.03' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=269.00' (Free Discharge)

↑**2=Culvert** (Controls 0.00 cfs)

Lot 2 Drainage Analysis

Prepared by ALAN Engineering, L.L.C.

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Runoff Comparison - Lot 2

Type III 24-hr 100-Year Storm Rainfall=8.48"

Page 8

Summary for Subcatchment E: Existing Runoff

Runoff = 0.49 cfs @ 12.09 hrs, Volume= 0.037 af, Depth> 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Storm Rainfall=8.48"

Area (sf)	CN	Adj	Description
2,406	98		Unconnected pavement, HSG A
6,378	39		>75% Grass cover, Good, HSG A
8,784	55	47	Weighted Average, UI Adjusted
6,378			72.61% Pervious Area
2,406			27.39% Impervious Area
2,406			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment P1: Proposed Yard Runoff

Runoff = 0.25 cfs @ 12.09 hrs, Volume= 0.022 af, Depth> 1.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Storm Rainfall=8.48"

Area (sf)	CN	Adj	Description
588	98		Unconnected pavement, HSG A
6,196	39		>75% Grass cover, Good, HSG A
6,784	44	42	Weighted Average, UI Adjusted
6,196			91.33% Pervious Area
588			8.67% Impervious Area
588			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment P2: Roof Runoff

Runoff = 0.40 cfs @ 12.07 hrs, Volume= 0.032 af, Depth> 8.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Storm Rainfall=8.48"

Lot 2 Drainage Analysis

Prepared by ALAN Engineering, L.L.C.

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Runoff Comparison - Lot 2

Type III 24-hr 100-Year Storm Rainfall=8.48"

Page 9

Area (sf)	CN	Description
2,000	98	Roofs, HSG A
2,000		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Reach P: Total Proposed Runoff

Inflow Area = 0.202 ac, 29.46% Impervious, Inflow Depth > 1.40" for 100-Year Storm event
Inflow = 0.25 cfs @ 12.09 hrs, Volume= 0.023 af
Outflow = 0.25 cfs @ 12.09 hrs, Volume= 0.023 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Pond RD1: Roof Drain System

Inflow Area = 0.046 ac, 100.00% Impervious, Inflow Depth > 8.23" for 100-Year Storm event
Inflow = 0.40 cfs @ 12.07 hrs, Volume= 0.032 af
Outflow = 0.14 cfs @ 12.30 hrs, Volume= 0.032 af, Atten= 64%, Lag= 13.9 min
Discarded = 0.05 cfs @ 11.59 hrs, Volume= 0.030 af
Primary = 0.09 cfs @ 12.30 hrs, Volume= 0.002 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 271.16' @ 12.30 hrs Surf.Area= 262 sf Storage= 328 cf

Plug-Flow detention time= 33.0 min calculated for 0.032 af (100% of inflow)
Center-of-Mass det. time= 32.9 min (772.0 - 739.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	269.00'	198 cf	11.25'W x 23.25'L x 2.54'H Field A 665 cf Overall - 169 cf Embedded = 496 cf x 40.0% Voids
#2A	269.50'	169 cf	Cultec R-150XLHD x 6 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 3 rows
		367 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	269.00'	8.270 in/hr Exfiltration over Horizontal area
#2	Primary	271.00'	4.0" Round Culvert X 2.00 L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 271.00' / 270.90' S= 0.0200 ' S= 0.0200 ' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf

Lot 2 Drainage Analysis

Prepared by ALAN Engineering, L.L.C.

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Runoff Comparison - Lot 2

Type III 24-hr 100-Year Storm Rainfall=8.48"

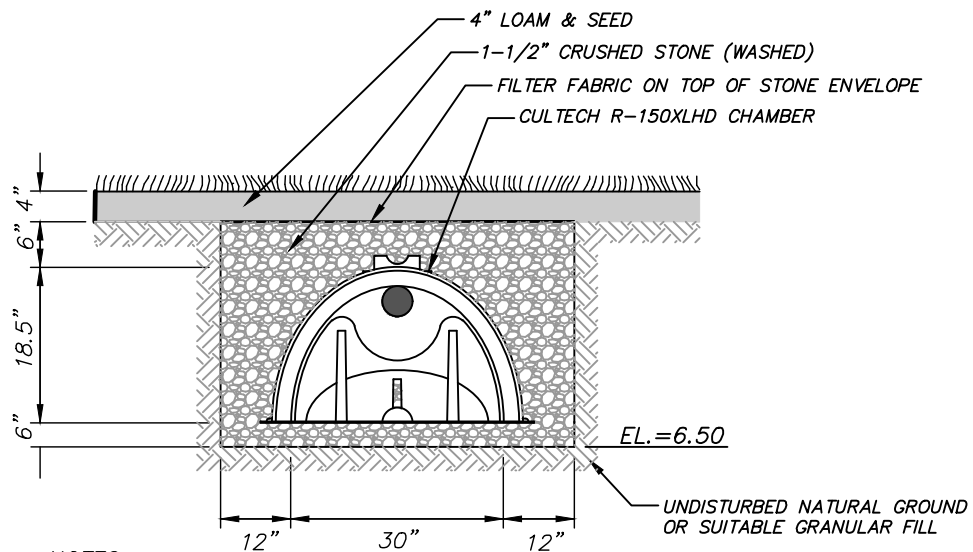
Page 10

Discarded OutFlow Max=0.05 cfs @ 11.59 hrs HW=269.03' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.09 cfs @ 12.30 hrs HW=271.16' (Free Discharge)

↑**2=Culvert** (Inlet Controls 0.09 cfs @ 1.09 fps)

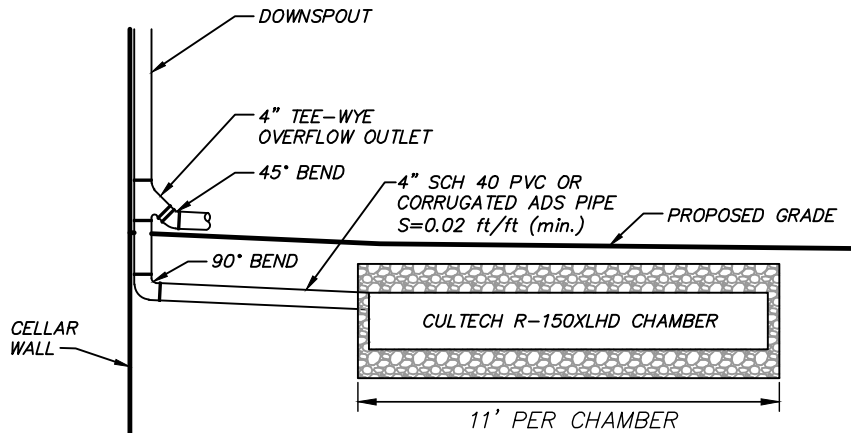


NOTES:

REMOVE ALL TOP AND SUBSOIL AND ANY ORGANIC OR OTHERWISE UNSUITABLE MATERIAL TO A DEPTH OF 2 FEET BENEATH STONE.

ROOF DRAIN LEACHING CHAMBER

NOT TO SCALE



ROOF DRAIN DETAIL

NOT TO SCALE

COPYRIGHT © 2016

ROOF DRAIN DETAIL
47 SPY POND LANE
LOT 2
ARLINGTON, MA

**ALAN
ENGINEERING, L.L.C.**
288 LITTLETON ROAD, SUITE 31
WESTFORD, MA 01886

JOB NO. 1140

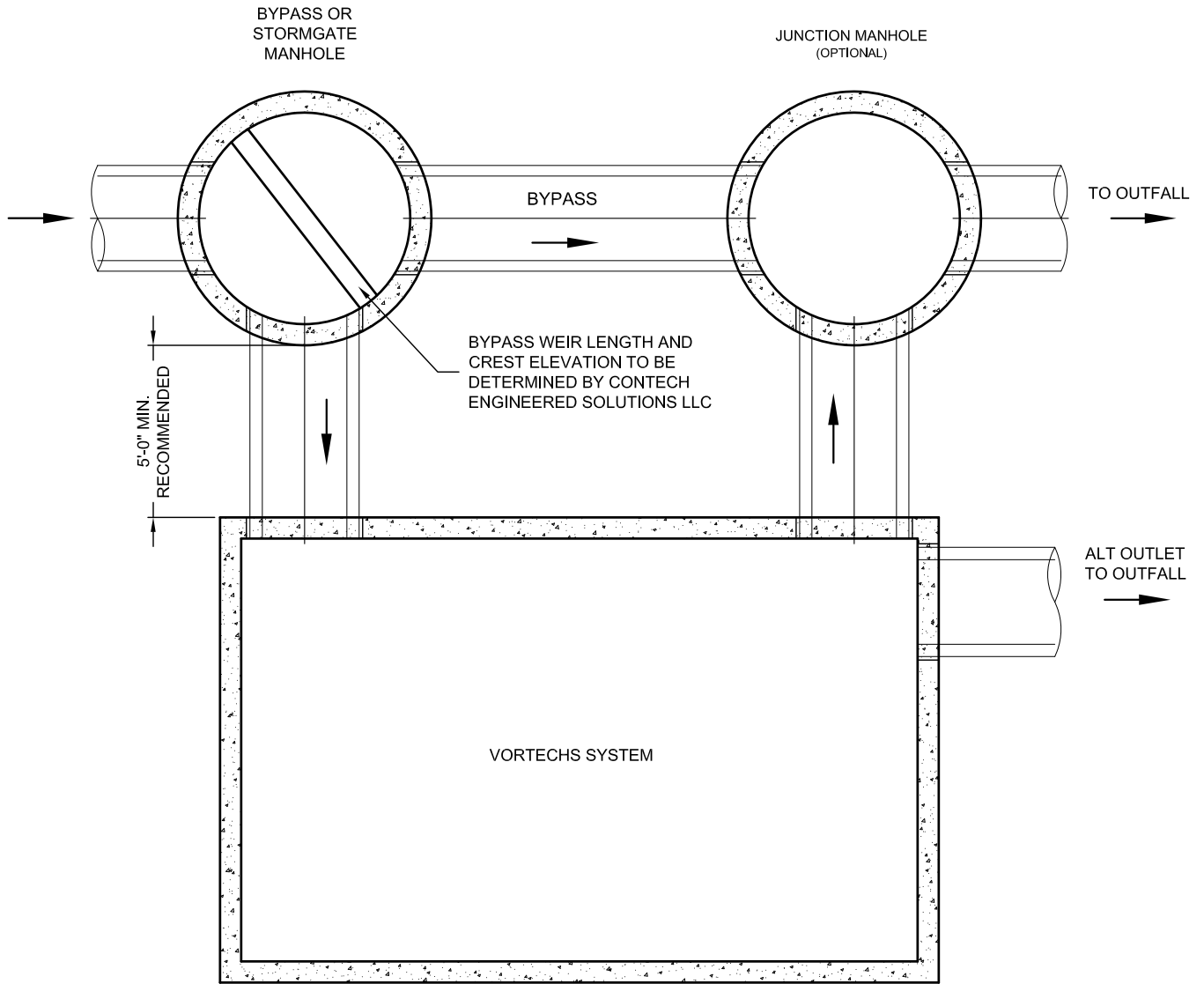
DWG NO

JUNE 28, 2016

SHEET

SCALE: AS SHOWN 110 of 129

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- BYPASS AND JUNCTION STRUCTURES MAY OR MAY NOT BE SUPPLIED BY CONTECH -



ACTUAL ORIENTATION AND LAYOUT MAY VARY DUE TO
SITE SPECIFIC CONSIDERATIONS



THIS PRODUCT MAY BE PROTECTED BY THE FOLLOWING
U.S. PATENT: 5,759,415; RELATED FOREIGN PATENTS.

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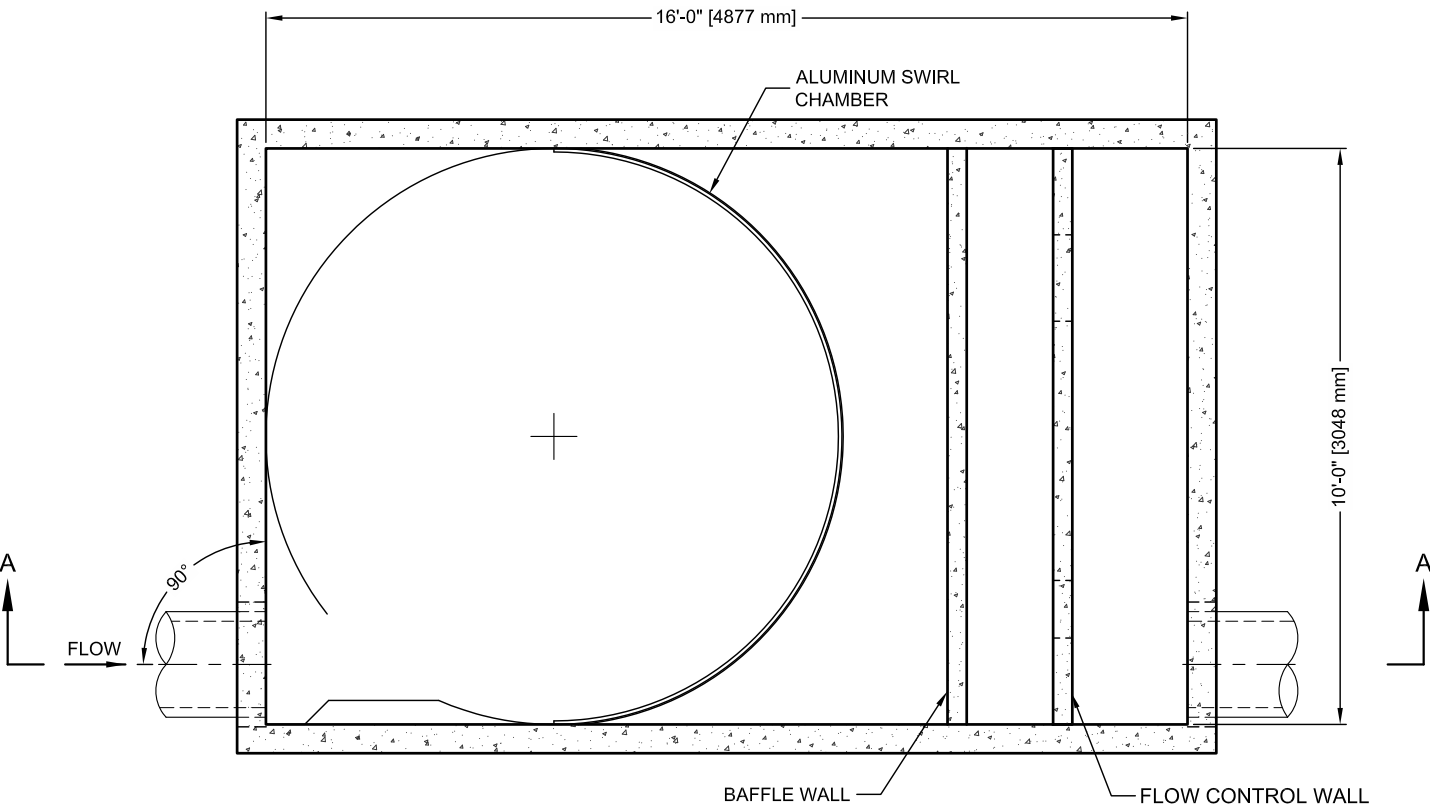
200 Enterprise Drive, Scarborough, ME 04074
877-907-8676 207-885-9830 207-885-9825 FAX

TYPICAL BYPASS LAYOUT
VORTECHS® STORMWATER TREATMENT SYSTEM

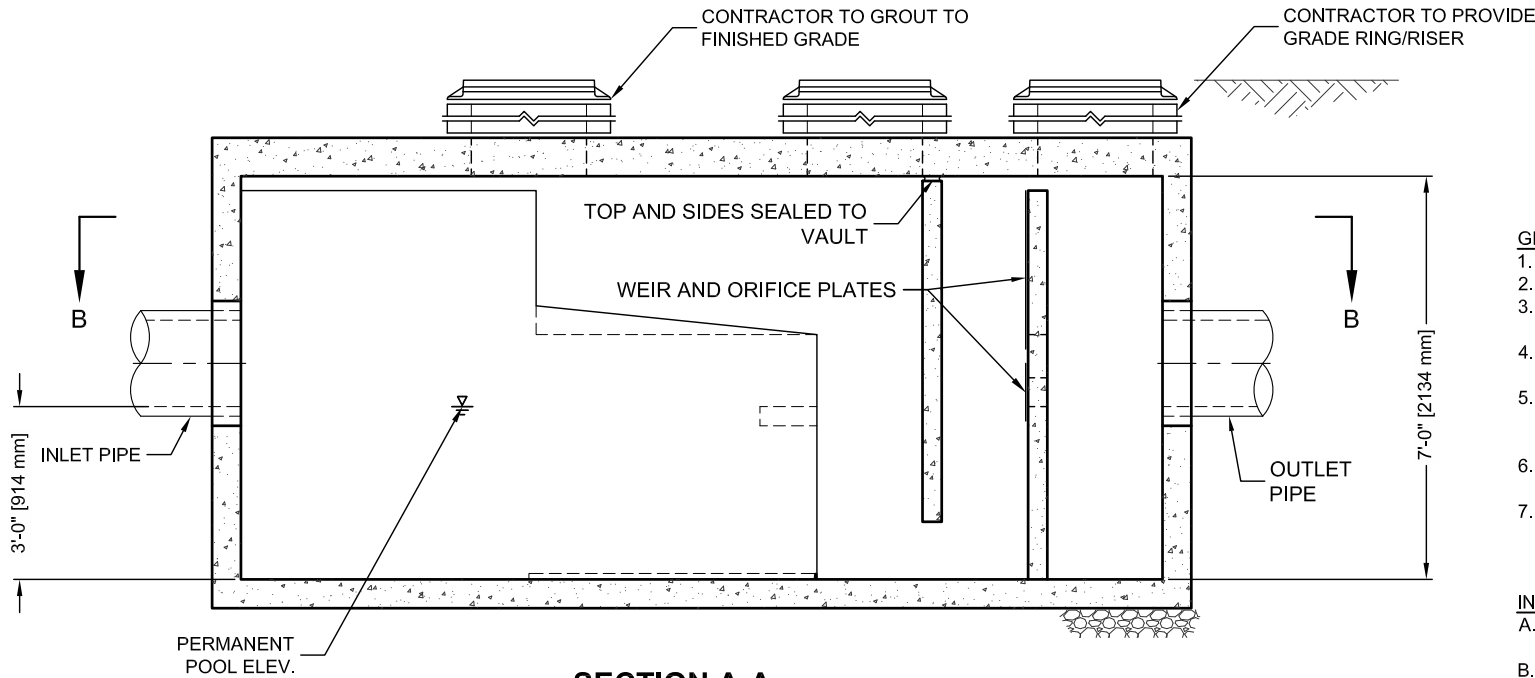
312 of 325

DATE: 3/8/13	SCALE: NONE	PROJECT No.: TYPVXBPLOR	SEQ. No.: N/A	DRAWN: SCF	CHECKED: NDG
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SECTION B-B



SECTION A-A

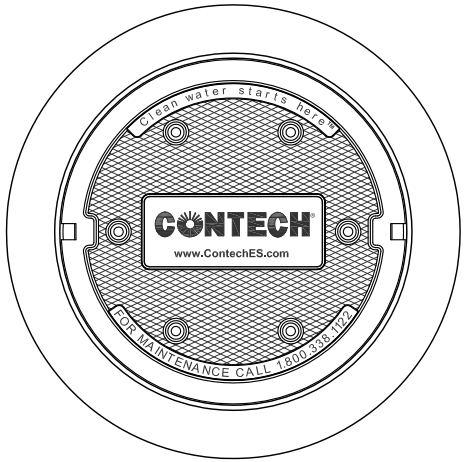


THIS PRODUCT MAY BE PROTECTED BY THE FOLLOWING
U.S. PATENT: 5,759,415; RELATED FOREIGN PATENTS.

VORTECHS 11000 DESIGN NOTES

VORTECHS 11000 RATED TREATMENT CAPACITY IS 17.5 CFS, OR PER LOCAL REGULATIONS. IF THE SITE CONDITIONS EXCEED RATED TREATMENT CAPACITY, AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

THE STANDARD INLET/OUTLET CONFIGURATION IS SHOWN. FOR OTHER CONFIGURATION OPTIONS , PLEASE CONTACT YOUR CONTECH CONSTRUCTION PRODUCTS REPRESENTATIVE. www.ContechES.com



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

**SITE SPECIFIC
DATA REQUIREMENTS**

STRUCTURE ID			*
WATER QUALITY FLOW RATE (CFS)			*
PEAK FLOW RATE (CFS)			*
RETURN PERIOD OF PEAK FLOW (YRS)			*
PIPE DATA:			
I.E.	MATERIAL	DIAMETER	
INLET PIPE 1	*	*	*
INLET PIPE 2	*	*	*
OUTLET PIPE	*	*	*
RIM ELEVATION			*
ANTI-FLOTATION BALLAST		WIDTH	HEIGHT
		*	*
NOTES/SPECIAL REQUIREMENTS:			
* PER ENGINEER OF RECORD			

GENERAL NOTES

1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH () ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
4. VORTECHS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET AASHTO M306 LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
6. INLET PIPE(S) MUST BE PERPENDICULAR TO THE VAULT AND AT THE CORNER TO INTRODUCE THE FLOW TANGENTIALLY TO THE SWIRL CHAMBER. DUAL INLETS NOT TO HAVE OPPOSING TANGENTIAL FLOW DIRECTIONS.
7. OUTLET PIPE(S) MUST BE DOWN STREAM OF THE FLOW CONTROL BAFFLE AND MAY BE LOCATED ON THE SIDE OR END OF THE VAULT. THE FLOW CONTROL WALL MAY BE TURNED TO ACCOMODATE OUTLET PIPE KNOCKOUTS ON THE SIDE OF THE VAULT.

INSTALLATION NOTES

- A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
- B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE VORTSENTRY HS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
- C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
- D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
- E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.



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**VORTECHS 11000
STANDARD DETAIL**

VORTECHS SYSTEM® ESTIMATED NET ANNUAL TSS REDUCTION



Spy Pond
Arlington, MA
MODEL NAME VORTECHS 11000
SITE DESIGNATION VORTECHS

Design Ratio¹ =
$$\frac{(27 \text{ acres}) \times (0.9) \times (449 \text{ gpm/cfs})}{(78.5 \text{ sf})} = 138.9$$

Estimated bypass occurs at an elevation of 3.7' (at approximately 73 gpm/sf) above inlet invert*
*assuming a weir length of 6 ft

<u>Rainfall Intensity</u> "/hr	<u>Operating Rate</u> ² gpm/sf	<u>Treated Flow</u> cfs	<u>% Total Rainfall</u> Volume ³	<u>Rmvl. Effic</u> ⁴ (%)	<u>Rel. Effic</u> (%)
0.02	2.8	0.49	10.2%	100.0%	10.2%
0.04	5.6	0.97	9.6%	100.0%	9.6%
0.06	8.3	1.46	9.4%	100.0%	9.4%
0.08	11.1	1.94	7.7%	99.8%	7.7%
0.10	13.9	2.43	8.6%	99.8%	8.6%
0.12	16.7	2.92	6.3%	99.6%	6.3%
0.14	19.4	3.40	4.7%	99.4%	4.6%
0.16	22.2	3.89	4.6%	99.1%	4.6%
0.18	25.0	4.38	3.5%	99.8%	3.5%
0.20	27.8	4.86	4.3%	98.5%	4.3%
0.25	34.7	6.08	8.0%	96.3%	7.7%
0.30	41.7	7.29	5.6%	92.7%	5.2%
0.35	48.6	8.51	4.4%	88.8%	3.9%
0.40	55.6	9.72	2.5%	84.5%	2.1%
0.45	62.5	10.94	2.5%	79.9%	2.0%
0.50	69.5	12.15	1.4%	74.8%	1.0%
0.75	104.6	18.31	5.1%	0.0%	0.0%
1.00	139.5	24.41	1.0%	0.0%	0.0%
1.50	171.6	30.02	0.0%	0.0%	0.0%
2.00	183.2	32.06	0.0%	0.0%	0.0%
3.00	202.3	35.39	0.2%	0.0%	0.0%
					90.8%
% rain falling at >0"/hr or bypassing treatment =					0.2%
Assumed removal efficiency for bypassed flows =					0.0%
Estimated reduction in efficiency ⁴ =					6.5%
Predicted Net Annual Load Removal Efficiency =					84%

1 - Design Ratio = (Total Drainage Area) x (Runoff Coefficient) x (cfs to gpm conversion) / Grit Chamber Area
 - The Total Drainage Area and Runoff Coefficient is specified by the site engineer.
 - The conversion factor from cfs to gpm is 449.

2 - Operating Rate (gpm/sf) = intensity ("/hr) x Design Ratio.

3 - Based on 10 years of hourly precipitation data from NCDC Station 770, Boston WSFO AP, Suffolk County, MA

4- Reduction due to use of 60-minute data for a site that has a time of concentration less than 30-minutes.

Calculated by: CJA 5/8/15 Checked by:

Construction Period Operation & Maintenance Plan

Construction Period Stormwater
Operation & Maintenance Plan

Site Redevelopment
47 Spy Pond Lane (Lot 2/B), Arlington, MA

Erosion and Sedimentation will be controlled at the site by utilizing Structural Practices, Stabilization Practices, and Dust Control. These practices correspond with site plans submitted for the 47 Spy Pond Lane (Lot 1/A) project.

Responsible Party

Seaver Construction, Inc.
215 Lexington Street
Woburn, MA 01801

City of Arlington Emergency Contact Information

Conservation Administrator

Town Hall
730 Massachusetts Avenue
Arlington, MA
(781) 316 3012

Project Summary

The project involves the construction of a new home, driveway, landscaping and utilities. A wetland resource area, ie Spy Pond, at the rear of the property requires diligence in ensuring that disturbance to the site does not cause erosion or detriment to the resource area. At the outset of the project, erosion controls shall be installed and maintained throughout the duration of the proposed work as follows.

Erosion & Sedimentation Control Practices

- 1) **Silt Sock Erosion Control Barrier** – A Filter Mitt erosion control barrier, backed by an entrenched row of siltation control fencing, will be installed along downward slopes at the limit of work shown on the site plans. This control will be installed prior to soil disturbance on the site. The sediment fence should be installed as shown on the Site Plans.

Filter Mitt Inspection/Maintenance *

- a) Erosion control should be inspected immediately after each rainfall event of 1-inch or greater, and at least daily during prolonged rainfall. Inspect the depth of sediment, fabric tears, if the silt sock is securely attached to the ground, and to see that the stakes are firmly in the ground. Repair or replace as necessary.
- b) Remove sediment deposits promptly after storm events to provide adequate storage volume for the next rain and to reduce pressure on the sock. Sediment will be removed from behind the sock when it becomes about 3 inches deep at the fence. Take care to avoid undermining sock during cleanout.

- c) Remove all materials after the contributing drainage area has been properly stabilized. Sediment deposits remaining after the fabric has been removed should be graded to conform with the existing topography and vegetated.
- 2) **Stabilized Construction Entrance** – A stabilized construction entrance shall be placed at the location of the proposed driveway, or at the location specified on the site plans. The stabilized entrance shall be installed immediately following the removal of the existing bituminous concrete driveway. The entrance will keep mud and sediment from being tracked onto Spy Pond Lane by vehicles leaving the site. This stabilized entrance shall be 15 feet long and as wide as the proposed drive.

Construction Entrance Design/Construction Requirements *

- a) Stone for a stabilized construction entrance shall consist of 1 to 3-inch stone placed on a stable foundation.
- b) Pad dimensions: The minimum length of the gravel pad should be 15 feet. The pad should extend the full width of the proposed driveway, or wide enough so that the largest construction vehicle will fit in the entrance with room to spare; whichever is greater. If a large amount of traffic is expected at the entrance, then the stabilized construction entrance should be wide enough to fit two vehicles across with room to spare.
- c) A geotextile filter fabric shall be placed between the stone fill and the earth surface below the pad to reduce the migration of soil particles from the underlying soil into the stone and vice versa. The filter fabric should be Amoco woven polypropylene 1198 or equivalent.

Construction Entrance Inspection/Maintenance *

- a) The entrance should be maintained in a condition that will prevent tracking or flowing of sediment onto Spy Pond Lane. This may require periodic topdressing with additional stone.
- b) The construction entrance and sediment disposal area shall be inspected weekly and after heavy rains or heavy use.
- c) Mud and sediment tracked or washed onto public road shall be immediately removed by sweeping.
- d) If washing facilities are used, the sediment traps should be cleaned out as often as necessary to assure that adequate trapping efficiency and storage volume is available.
- e) The pad shall be reshaped as needed for drainage and runoff control.
- f) All temporary erosion and sediment control measures shall be removed within 30 days after final site stabilization is achieved or after the temporary practices are no longer needed. Trapped sediment shall be removed or stabilized on site. Disturbed soil areas resulting from removal shall be permanently stabilized.

- 3) **Temporary Seeding** – Temporary seeding will allow a short-term vegetative cover on disturbed site areas that may be in danger of erosion. Temporary seeding will be done at stock piles and disturbed portions of the site where construction activity will temporarily cease for at least 21 days. The temporary seedings will stabilize cleared and unvegetated areas that will not be brought into final grade for several weeks or months.

Temporary Seeding Planting Procedures *

- a) Planting should preferably be done between April 1st and June 30th, and September 1st through September 31st. If planting is done in the months of July and August, irrigation may be required. If planting is done between October 1st and March 31st, mulching should be applied immediately after planting. If seeding is done during the summer months, irrigation of some sort will probably be necessary.
- b) Before seeding, install structural practice controls. Utilize Amoco supergro or equivalent.
- c) The seedbed should be firm with a fairly fine surface. Perform all cultural operations across or at right angles to the slope. A minimum of 2 to 4-inches of tilled topsoil is required. The topsoil must have a sandy loam to silt loam texture with 15% to 20% organic content.
- d) Apply uniformly 2 tons of ground limestone per acre (100 lbs. Per 1,000 sq.ft.) or according to soil test. Apply uniformly 10-10-10 analysis fertilizer at the rate of 400 lbs. per acre (14 lbs. per 1,000 sq.ft.) or as indicated by soil test. Forty percent of the nitrogen should be in organic form. Work in lime and fertilizer to a depth of 4-inches using any suitable equipment.
- e) Select the appropriate seed species for temporary cover from the following table.

Species	Seeding Rate (lbs/1,000 sq.ft.)	Seeding Rate (lbs/acre)	Recommended Seeding Dates	Seed Cover required
Annual Ryegrass	1	40	April 1 st to June 1 st August 15 th to Sept. 15 th	¼ inch
Foxtail Millet	0.7	30	May 1 st to June 30 th	½ to ¾ inch
Oats	2	80	April 1 st to July 1 st August 15 th to Sept. 15 th	1 to 1-½ inch
Winter Rye	3	120	August 15 th to Oct. 15 th	1 to 1-½ inch

Apply the seed uniformly by hydroseeding, broadcasting, or by hand.

- f) Use an effective mulch, such as clean grain straw; tacked and/or tied with netting to protect seedbed and encourage plant growth.

Temporary Seeding Inspection/Maintenance *

- a) Inspect within 6 weeks of planting to see if stands are adequate. Check for damage within 24 hours of the end to a heavy rainfall, defined as a 2-year storm event (i.e., 3.2 inches of rainfall within a twenty-four hour period). Stands should be uniform and dense. Fertilize, reseed, and mulch damaged and sparse areas immediately. Tack or tie down mulch as necessary.
 - b) Seeds should be supplied with adequate moisture. Furnish water as needed, especially in abnormally hot or dry weather. Water application rates should be controlled to prevent runoff.
- 4) **Dust Control** - Dust control will be utilized throughout the entire construction process of the site. For example, keeping disturbed surfaces moist during windy periods will be an effective control measure. The use of dust control will prevent the movement of soil to offsite areas. However, care must be taken to not create runoff from excessive use of water to control dust. The following are methods of Dust Control that may be used on-site:
- Vegetative Cover – The most practical method for disturbed areas not subject to traffic.
 - Sprinkling – The site may be sprinkled until the surface is wet. Sprinkling will be effective for dust control on haul roads and other traffic routes.
 - Stone – Stone will be used to stabilize construction entrances; will also be effective for dust control.
- 5) **Material Stockpiling** – Material stockpiles shall be located as far from Wetland Resource Areas as possible and shall never be located within the 100-foot buffer zone as shown on the approved site plans. The preferred location for all stockpiles is at the front of the project locus between the house and Spy Pond Lane.

Post-Construction Stormwater
Operation & Maintenance Plan

Site Redevelopment
47 Spy Pond Land (Lot 2/B), Arlington, MA

Best Management Practices (BMPs) pursuant to the MA DEP Wetlands Protection Act, Arlington Wetlands Protection Bylaw and accepted design practice have been implemented and utilized for the project. The following information provided is to be used as a guideline for monitoring and maintaining the performance of the drainage facilities constructed as part of the site development. The structural Best Management Practices (BMPs) shall be inspected during rainfall conditions during the first year of operation to verify functionality.

Responsible Party

Homeowner

Town of Arlington Contact Information

Conservation Administrator

Town Hall

730 Massachusetts Avenue
Arlington, MA
(781) 316 3012

Maintenance:

1. **Infiltration Systems** – Subsurface infiltration systems shall be inspected twice per year to verify that sediment is not being discharged into the system and that the system is functioning properly. If sediment depth within the system exceeds three inches, an experienced contractor or designer shall be contacted to consult on methods to clean and remediate the system. Furthermore, at least once per year, the system shall be inspected immediately following a heavy rainfall to ensure that the system drains within 72 hours of the end of said storm. If, after 72 hours, the system is still retaining water, the homeowner shall contact a licensed professional civil engineer to determine a method for remediating the system failure.
2. **Crushed Stone Infiltration Trench** – The crushed stone infiltration trench at the edge of the driveway shall be cleaned of debris during regular landscape maintenance. A standard leaf blower can be used to remove debris from the stone surface. If the trench fails to drain after rainfall, the stone shall be removed, washed, and placed back in the trench after the bottom is scarified.
3. **Pesticides, Herbicides and Fertilizers:** - Pesticides and herbicides shall not be used on the property. In addition, fertilizers that are used on the property shall be utilized sparingly and should be restricted to the use of organic fertilizers only

Storage and Disposal of Household Waste and Toxics:

This management measure involves educating the general public on the management considerations for hazardous materials. Failure to properly store hazardous materials dramatically increases the probability that they will end up in local waterways. Many people have hazardous chemicals stored throughout their homes, especially in garages and storage sheds. Practices such as covering hazardous materials or even storing them properly, can have

dramatic impacts. Property owners are encouraged to support the household hazardous product collection events sponsored by the Town of Arlington.

MADEP has prepared several materials for homeowners on how to properly use and dispose of household hazardous materials:

<http://www.mass.gov/dep/recycle/reduce/househol.htm>

For consumer questions on household hazardous waste call the following number:

DEP Household Hazardous Waste Hotline 800-343-3420

Vehicle Washing:

This management measure involves educating the general public on the water quality impacts of the outdoor washing of automobiles and how to avoid allowing polluted runoff to enter the storm drain system. Outdoor car washing has the potential to result in high loads of nutrients, metals, and hydrocarbons during dry weather conditions in many watersheds, as the detergent-rich water used to wash the grime off our cars flows down the street and into the storm drain. The following management practices will be encouraged:

- Washing cars on gravel, grass, or other permeable surfaces.
- Blocking off the storm drain during car washing and redirecting wash water onto grass or landscaping to provide filtration.
- Using hoses with nozzles that automatically turn off when left unattended.
- Using only biodegradable soaps.
- Minimize the amounts of soap and water used. Wash cars less frequently.
- Promote use of commercial car wash services.

Landscape Maintenance:

This management measure seeks to control the storm water impacts of landscaping and lawn care practices through education and outreach on methods that reduce nutrient loadings and the amount of storm water runoff generated from lawns. Nutrient loads generated by fertilizer use on suburban lawns can be significant, and recent research has shown that lawns produce more surface runoff than previously thought.

Using proper landscaping techniques can effectively increase the value of a property while benefiting the environment. These practices can benefit the environment by reducing water use; decreasing energy use (because less water pumping and treatment is required); minimizing runoff of storm and irrigation water that transports soils, fertilizers, and pesticides; and creating additional habitat for plants and wildlife. The following lawn and landscaping management practices will be encouraged:

- Mow lawns at the highest recommended height.
- Minimize lawn size and maintain existing native vegetation.

- Collect rainwater for landscaping/gardening needs (rain barrels and cisterns to capture roof runoff).
- Raise public awareness for promoting the water efficient maintenance practices by informing users of water efficient irrigation techniques and other innovative approaches to water conservation.
- Abide by water restrictions and other conservation measures implemented by the Town of Arlington.
- Water only when necessary.
- Use automatic irrigation systems to reduce water use.